

# Household Management and Kitchens

PLANNING HOUSEHOLD ACTIVITIES  
EQUIPMENT OF WORK AREAS



JOHN IHLDER

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**PUBLICATIONS OF THE PRESIDENT'S  
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# Household Management and Kitchens

*Reports of the Committees on*

HOUSEHOLD MANAGEMENT

EFFIE I. RAITT, *Chairman*

KITCHENS AND OTHER WORK CENTERS

ABBY L. MARLATT, *Chairman*

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*Edited by*

JOHN M. GRIES AND JAMES FORD

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THE PRESIDENT'S CONFERENCE ON HOME  
BUILDING AND HOME OWNERSHIP

WASHINGTON, D. C.

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## COMMITTEE ON HOUSEHOLD MANAGEMENT

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Head, Department of Home Economics,  
University of Washington,  
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Mrs. Helen Elizabeth Judy-Bond, Assistant Professor of Household Arts, Teachers College, Columbia University, New York, New York.

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Mrs. Hazel Kyrk, Associate Professor of Home Economics, University of Chicago, Chicago, Illinois.

Miss Blanche L. Lee, State Home Demonstration Leader, Montana State College, Bozeman, Montana.

Miss Paulena Nickell, Department of Home Economics, University of Illinois, Urbana, Illinois.

Miss Ruth O'Brien, Chief, Division of Textiles and Clothing, Bureau of Home Economics, U. S. Department of Agriculture, Washington, D. C.

Vincent B. Phelan, Civil Engineer, Division of Building and Housing, Bureau of Standards, U. S. Department of Commerce, Washington, D. C.

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Miss Faith M. Williams, Senior Economist, Bureau of Home Economics, U. S. Department of Agriculture, Washington, D. C.

Mrs. Mildred Weigley Wood, Director, Home Economics Education, Phoenix Union High School and Junior College, Phoenix, Arizona.

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Assistant Economist, Bureau of Home Economics,  
U. S. Department of Agriculture, Washington, D. C.

MISS B. ELEANOR JOHNSON, *Research Assistant*,  
Washington, D. C.

## COMMITTEE ON KITCHENS AND OTHER WORK CENTERS

MISS ABBY L. MARLATT, *Chairman*,  
Director, Courses in Home Economics,  
College of Agriculture,  
University of Wisconsin,  
Madison, Wisconsin.

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Research Director, Better Homes in America,  
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## FOREWORD

An essential prerequisite in home building is a conception of the needs of the family that is to occupy the house. With a fine sense of values the two committees whose reports are incorporated in this volume have studied the design and equipment of work areas so that a maximum contribution may be made to the well-being of all members of the household.

Every member of the family should be considered and the necessities of the daily routine made easy and comfortable. In order to achieve life's highest values, household management and the routine operations of the household should not be made ends in themselves but should be recognized as instrumental values, properly subordinated but efficiently planned and executed.

The relief from the thralldom of needless routine is the negative aspect of a problem which in its positive phase involves the organization of the forces concerned in daily living in such a manner that the greatest advantages possible may be obtained. Work becomes a joy when facilitated by intelligent planning. It also provides an outlet for the spirit of service that is the basis of a happy home.

The removal of sources of needless irritation affects the spirit of family life and can be accomplished in large part by appropriate even though economical equipment and skillful planning and arrangement of the rooms of the house and their equipment with the needs and wishes of every member of the family in mind. But the family life which progresses farthest is that which is carefully planned and organized with reference to agreeable mutual relations and mutual help.

Homemakers, home economists and specialists with widely diverse backgrounds have cooperated in an intensive analytical co-operative study. Their findings represent points of agreement with the progressive thinking of those who have had opportunity to study these matters most deeply. The resultant volume is a contribution of exceptional value not only to the householders and homemakers of the country but also to architects and builders who may take advantage of these findings.

RAY LYMAN WILBUR.





## INTRODUCTION

Throughout the field of housing a coordination of the thought and activity of many diverse specialties is necessary if economical and appropriate action is to result. In the past too little thought has been given to housing by home economists and too little thought to household management and work areas by housing specialists. This volume makes a new synthesis of the studies of a variety of specialists—economists, engineers, sociologists, moralists, architects, builders, and dealers in materials and equipment. Housework, which traditionally has been viewed as a necessary evil, has been shown to have potentialities for interest and business efficiency through the application of principles of management and applied economics tempered by an appreciation of objectives and values.

Conceivably this volume will contribute more of immediate value to architects, builders and material dealers than to homemakers because its well-reasoned discussions will be largely new to the former groups. For the householder and homemaker, however, it has the merit of bringing together much of the best of accessible information in its field in a single unitary study, the findings of which if accessible before were scattered through books, pamphlets and magazine articles in such a way as to give no adequate picture of the problem as a whole.

The Committee on Household Management has studied efficiency in household operations with reference to expenditures of time, money and effort involved. This led to examination of the causes of fatigue, purchasing procedures, problems of domestic labor, the saving of time and energy by better planning of operations and the purchase of appropriate equipment. Many of these studies have helped to break new ground and all of them have served to coordinate past studies and thought in this field and to indicate important new and promising directions for research and action.

Problems concerning kitchens that needed analysis as a means of facilitating the improvement of housing conditions were those of planning, construction, arrangement, equipment, ventilation, lighting and sanitation. The committee in considering these subjects covered also the problems of the laundry and the relation

of the work centers to each other and to the house as a whole. Such details of their subject matter as the selection of wall and floor coverings that are easy to clean, selection and arrangement of equipment to eliminate fatigue-producing movements, heights of working surfaces, the proper placement of lighting fixtures, the proper arrangement, shape, size and equipment of storage spaces, the storing of cleaning equipment, the placing of electric outlets for utmost convenience in use were not recognized as phases of the housing problem by most specialists prior to this Conference. They are, nevertheless, of great importance and the housing problem remains unsolved until such details have been so carefully analyzed that the kitchen and other work centers of the house are freed of their many characteristic inconveniences and are made efficient work centers for carrying on the many indispensable operations upon which the health, efficiency and happiness of all members of the household so largely depend.

Even if the two studies incorporated in this book are looked upon as preliminary to more elaborate investigations they do give a working basis for immediate public education in schools, colleges, extension departments and through the press. Pending further and more intensive studies they should be of immediate service also to architects, builders, realtors and manufacturers and dealers in household equipment. Such a comprehensive compilation of the best of contemporary knowledge on these subjects will be immediately helpful also to householders and homemakers in the reorganizing of their own household activities and the re-arrangement and supplementation of facilities. The home economists and others who have served upon these two committees have therefore rendered a unique and valuable service by reviewing and developing their subject matter in its relation to the whole field of housing.

JOHN M. GRIES

JAMES FORD

May 23, 1932.

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# PART I. HOUSEHOLD MANAGEMENT

## CHAPTER I

### HOUSEHOLD MANAGEMENT PROBLEMS THAT AFFECT HOUSING

#### MEETING THE FUNDAMENTAL NEEDS OF THE MODERN FAMILY <sup>1</sup>

The ultimate aim in household management is the welfare of the family. Successful home management is accomplished by so ordering the affairs of the home that the best results are obtained through wise choice, efficient direction, and skillful handling of resources. In this, the housing of the family plays an important part in its demands upon family income and in its effect upon the time and energy spent in household tasks.

The rich heritage of the past should serve as the basis upon which scientific procedures of the modern age may be established. We fix our attention too much upon the drudgery of the old way of living—its laborious processes, its exhausting work with meager tools. Yet it would be well to consider its values; the pride in achievement, the attitude that in work there is opportunity for self-expression and enduring satisfactions. Management of the household is unfruitful unless it fosters right attitudes on the part of the members of the family.

Housing standards that will insure safety, health, comfort, and privacy are basic needs. Safety, health, and comfort usually are emphasized in housing studies, but privacy too often is overlooked. Comfort is normally considered, but the work involved in maintenance often is disregarded. Provision should be made for a social life that will develop those human qualities that lead to enrichment of life. Financial solvency based in part upon such expenditures for housing that are in harmony with income is a first consideration.

With the needs of the family related to housing in mind, it becomes necessary to determine how they can best be met. The house plays an important role. The structure and equipment must

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<sup>1</sup> Prepared by Effie I. Raitt, Head, Department of Home Economics, Washington State College, Seattle Wash., and Chairman of the Committee.

be considered in all of their aspects in order to provide healthful conditions. For good standards in housing, a sufficient number of rooms in relation to the number in the family should be provided; the house should be designed and oriented to obtain sunlight and fresh, clean air; the surroundings should be clean and wholesome, free from obnoxious odors and excessive noise. Provision for adequate heat in cold weather and protection from heat in hot weather are necessary in some parts of the country.

Statistics in regard to accidents in the household are startling. Thirty thousand deaths in this country in 1930 from accidents in homes clearly indicate a need for more careful analysis of interior design and a more thorough inspection of equipment. Protection against wrong use of medical and cleaning supplies is essential.<sup>2</sup>

A house may be so arranged that many of the causes of fatigue are eliminated. Work conditions that are convenient such as properly adjusted heights for working surfaces, good lighting, and rooms arranged for routinizing housework, will lessen fatigue causes. Even in well-arranged homes, worry, monotony, distractions, lack of orderliness and improper work habits induce fatigue. It is important, therefore, that each house have facilities for privacy for each member of the family; that usable, comfortable furniture be conveniently placed for rest, and that chairs be chosen for comfort as well as for attractiveness. Work continued under fatigue is costly. For economy of effort, comfortable clothing, adequate tools, rest pauses in work, and frequent changes of work are essential.

Orderliness helps to create a restful atmosphere in the home and contributes much to the morale of the family. A minimum of effort is required to keep rooms free from things out of place when convenient, well-designed, adequate storage spaces are provided. Hospitality in one's own home may be one of the family's greatest pleasures, yet many people shrink from inviting friends to their homes because of the uncertainty of the conditions in which they will find the living room, or because of the work involved in putting the house in company order.

Obviously, the attractiveness of the house depends to a large

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<sup>2</sup> See housing and safety section of *Housing and the community; home repair and remodeling*. Publications of the President's Conference on Home Building and Home Ownership, vol. VIII.

extent upon the materials and finishes. The types used influence the first cost, expense of upkeep, and the work involved in care. Little attempt has so far been made at an inclusive systematic study of finishes and their care. Because of lack of information, the housewife may make poor choices which result in waste effort and frequent replacements. The housekeeper is too apt to think in terms of magic when dealing with cleaning processes and reagents. A systematic study by technical experts is urgently needed.

Home ownership will not give satisfaction unless the family income is adequate to support the type of home the family is buying, and the activities for which it forms a background are well ordered. Housekeeping procedures are successful to the degree that they are based upon the best scientific findings available, and are scheduled so as to conserve time and energy. The method of supplying services must be determined. Shall the homemaker be the sole housekeeper? To what extent shall the other members of the household be called upon to share responsibilities? How much paid household service shall be employed? Are commercial or cooperative substitute facilities available? To what extent is their use advisable?

An analysis of housing defects as they affect family life is worth while. Even those of minor importance may account in the long run for considerable discomfort or loss of time. The assembling of principles and practices from many fields of knowledge and from many lines of activity is essential in order that homes and home life may be improved. Assembling, testing, evaluating, adapting, establishing as routine practices—so runs the sequence by which progress is made.

Because of its direct effect upon daily living, the management of the family finances is of enormous importance to the family welfare. Efficient budgeting of expenditures and wise purchasing are fundamental to the successful administration of a home. From the standpoint of planning for housing, budgeting encourages the formulation of a definite standard of housing consistent with the family's needs and its income. For families with comparatively stable occupations and incomes, for whom home ownership is practical, budgeting will aid in determining the amount which can fairly be allotted to payments on the principal of a mortgage and to the cost of upkeep of a house. The purchasing procedures of



a family are often a determining factor in its household economy. The utilization of factual material developed as a result of scientific experiments in household management will help in improving procedures within the home, and in directing studies for progress in the future.

### RELATIVE VALUES IN HOUSEHOLD MANAGEMENT <sup>3</sup>

"The secret of any successful home is the right adjustment of the 'conditions' to 'needs.' And since every one has different needs and different conditions one can make no general rules; each problem must be solved on its own." A successful home must, first and last, be adapted to its primary purpose—that of giving comfort, peace, and beauty, sufficiently in proportion to giving of its inmates what is to them "the good life."<sup>4</sup>

The discussion of household management problems to which this entire report is devoted is directed to the methods of successfully operating the home. These methods in themselves are, of course, merely a means to an end; that is, the creation of a successful home. The business of managing a household involves the constant weighing of values. This has always been necessary, but the values to be weighed in twentieth century housekeeping are more complex, since they must be viewed at long range. In earlier days they were simpler because they were nearer at hand.

Relative values in housekeeping today are increasingly affected by the function of decision and choice. The range of choice in methods and procedures is constantly widening, and the value of decisions is often difficult to estimate. Many of these values are not material ones; they are those "which round out life to an organic whole, those values which cannot be weighed and measured, but which lie back of all the comings and goings, all the daily plans."<sup>5</sup>

Values in housekeeping are not static. They are constantly shifting, since "our homes are shifting channels through which the

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<sup>3</sup> Prepared by Katharine Fisher, Director, Good Housekeeping Institute, New York, New York.

<sup>4</sup> Blair, E. N. *The creation of a home*, copyright 1930 by Emily Newell Blair and reprinted by permission of Farrar & Rinehart, Inc., publishers, p. 1.

<sup>5</sup> Abel, M. H. *Successful family life on the moderate income*. Philadelphia and London, J. B. Lippincott Co., 1927, p. 11,







Operations are easier and pleasanter in kitchens that are carefully arranged for the work to be carried on. Architect; Edwin H. Lundie, St. Paul, Minnesota.

reality of human life ceaselessly flows.”<sup>6</sup> “New values drive out old ones. . . . Happy the homemaker who at such a time makes such a revaluation as to cut off the things that are least essential to life and health, leaving the most essential. . . . When we consider how values may be affected by individual circumstances, by custom, by time and by crises, we become almost bewildered in our search for good values and cry out for some continuing unchanging standard.”<sup>7</sup>

“Inherited household customs will be examined, in order to see whether they have outlived their day . . . it would seem that the housewife of the present day must be urged to be an iconoclast.”<sup>8</sup> “Under the old rule-of-thumb, mother-to-daughter method of passing down the traditional domestic economy, when the same family recipe and doctor book . . . was commonly cherished by both mother and daughter, the home tended to resist the intrusion of new habits.”<sup>9</sup>

Today, increasing knowledge, new tools, and new materials are bringing new techniques and, for instruction in these, housekeepers frequently must turn to outside agencies. And while the present trend in the direction of the automatic operation of mechanical housekeeping devices makes the standardization of certain processes more easily possible, it should be recognized that highly standardized processes in housekeeping, developed as a result of time and motion studies, demand expert instruction and supervision that are, for the most part, beyond the reach of the housekeeper. In considering standards in material results in the various processes still carried on in the home, there is again the necessity for a careful weighing of values, with reference to what Mrs. Blair calls “the good life.”

This report has given attention to housework schedules, or work plans. Housekeeping routine, even today, is made up of a comparatively large number of somewhat loosely-related activities. To meet changing conditions and needs in the life of the household these activities must each day be rearranged in suitable sequence. This brings the need for executive ability. “A day’s

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<sup>6</sup> MacDonald, E. and F. *Homemaking, a profession for men and women*. Boston, Marshall Jones Co., 1927, p. 12.

<sup>7</sup> Hunt, C. L. *Revaluations*. Baltimore, Waverly Press, Inc., 1929, p. 19-20.

<sup>8</sup> Abel, *op. cit.*, p. 90.

<sup>9</sup> Lynd, R. S. and H. M. *Middletown, a study in contemporary American culture*, New York, Harcourt, Brace and Co., 1929, p. 157.

work in a home is more kaleidoscopic than a day's work at almost any other profession because of the number of ways in which definite things to do can be disarranged. Executive ability is the set of mirrors in the kaleidoscope which can furnish the element of orderly design around a central motive."<sup>10</sup> In most homes the housekeeper must be both the executive or manager, and the worker. She must plan the work and work the plan.

The investigators of *Middletown* found three main types of housewives—a small group for whom housework is a minor consideration; a "large group who, by careful management fit everything somehow into the morning and an afternoon hour or two and contrive to keep many afternoons and evenings relatively free for children, social life, and civic activities;" and a third group, also a large one, "for whom each day is a nip-and-tuck race to accomplish the absolute essentials between morning and bedtime, with occasional afternoons or evenings free only by planning in advance."<sup>11</sup>

It is obvious that housework schedules, and, to some extent, time and motion studies, in organizing the working hours, apply more particularly to the problems of the two latter groups. For "the [successful] house must be run in work hours. It must, at some certain period in the day, cease to be a workshop and become a product. And this it can only do if the homemaker herself cease at the same period to be workman and become detached from her job. The homemaker who does this will not make a cult of homemaking. . . . She will see it as it is, useful, important, but not an end in itself."<sup>12</sup>

A work plan that works will make this more easily possible.

When we consider that, more and more, home production is being replaced by goods and services produced and performed by outside agencies in return for a money price, income budgeting and household purchasing take on new values. The function of decision and choice looms large in budgeting and in purchasing. Standard budgets serve as a starting point in budgeting, but it can not be forgotten that a relatively high degree of intelligence is necessary in adapting a standard budget to individual needs. "I am not one thing and my expenditures another. My expenditure is me," said Emerson in emphasizing the individual nature of an

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<sup>10</sup> MacDonald, *op. cit.*, p. 14.

<sup>11</sup> Lynd, *op. cit.*, p. 169.

<sup>12</sup> Blair, *op. cit.*, p. 218-219.



income budget. However, "perhaps the most important result of all budget-making will prove to be the harmonizing of our individual plans with a program of social welfare."<sup>13</sup>

Charles Dickens put into the mouth of Mr. Micawber (who preached wisdom though he could not practice it) this advice:

"Annual income, twenty pounds;  
Annual expenditure, nineteen, nineteen six;  
Result—happiness.

"Annual income, twenty pounds;  
Annual expenditure, twenty pounds, ought and six;  
Result—misery."

In the industrial world, large-scale purchasing is a highly specialized skill. In contrast to this it has been said that "the home is a small-unit purchaser, served by an untrained amateur purchasing agent." Yet purchasing for the home involves the choosing of an infinitely wider variety of products than the purchasing agent in industry needs to consider. The purchasing agent in industry may purchase products on the basis of specifications for standards, or a quality rating which meets the needs of his organization. For he has not only facilities for testing, but because of his specialized training, his experience, and the expert assistance at his command, he is able to interpret specifications effectively. Not so the housekeeper consumer.

The home manager is not only a purchasing agent; she has many other important responsibilities. As G. K. Chesterton put it, "she was enabled to play at five or six professions . . ." [for] "the world must keep one great amateur, lest we all become artists and perish. Somebody must renounce all specialist conquests, that she may conquer all the conquerors."<sup>14</sup>

As a check on specifications,\* it would be necessary for housekeepers to have at their command adequate and unbiased testing facilities. Any attempt to buy products on the basis of specifications would turn the business of buying for the household into a highly specialized one and, with the wide variety of products

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<sup>13</sup> Bruère, M. B. and R. W. *Increasing home efficiency*. New York, The Macmillan Co., 1912, p. 93.

<sup>14</sup> Chesterton, G. K. *What's wrong with the world*. New York, Dodd, Mead and Co., 1910, p. 160, 317.

\* Committee not unanimous on this subject.

involved, it would be a very burdensome one. Without a specialized training, home managers could not even interpret specifications in a great majority of cases. They would, therefore, be of negative value. Products must be rated for the purchaser. And such dependable guides for the shopper are by no means lacking today. These should be extended for more adequate service, and, what is most important, the consumer should be instructed in using them effectively. The labels now provided by law for various types of packaged products, as a guide and protection for the consumer, are all too little read and followed. The work now being carried on in drawing the attention of consumers to the value of reading these labels is constructive and should be extended.

When we consider the large number of accidents in the home, many of them fatalities, values in housekeeping and household management should also be measured in terms of safety for the family. A number of agencies are doing constructive educational work in this direction. The National Safety Council has a Committee on Home Safety from which educational material may be obtained. This includes film strips with lectures on "Safe Electrical Equipment for the Home," "Safe Housekeeping Practices," "Child Accidents in the Home," and "Home Safety." Many state safety councils also are carrying on educational work on home safety. Through a Research Fellowship, the National Safety Council is also conducting an investigation of home accidents and methods of prevention.

Two great pioneers and interpreters in the field of home economics, Mrs. Ellen H. Richards and Miss Caroline L. Hunt, have each given us a philosophy of homemaking which is a fitting conclusion to any discussion of values. To Mrs. Richards, home economics stood for:

"The ideal home life for today unhampered by the traditions of the past.

"The utilization of all the resources of modern science to improve the home life.

"The freedom of the home from the dominance of things and their due subordination to ideals.

"The simplicity in material surroundings which will most free the spirit for the more important and permanent interests of the home and of society."

And Miss Hunt held that:

"For good homemaking, that which is necessary can be determined only by holding fast to the highest ideal of home and by having a clear understanding of changing social conditions. The ideal never changes; the best homemaking must always be an intelligent, affectionate effort to help others to attain as nearly as possible to completeness of life by securing for them those essentials of good living which they cannot obtain in other ways as well or better."<sup>15</sup>

## STANDARDS FOR HOUSEKEEPING <sup>16</sup>

No consideration of relative values as they relate to home management is useful save as it recognizes, first of all, the aim of homemaking. This section will concern itself with

1. The aims of housekeeping.
2. The determination of real values in the various phases of homemaking.
3. Means by which housekeepers may determine whether or not their jobs are being well done.

### The Aims of Housekeeping

While the immediate task of housekeeping may be cooking, cleaning, ironing, planning meals, scheduling work, or any one of a number of other tasks which daily or periodically confront the homemaker, yet back of any objective to accomplish these is a more basic motive, that of *the optimum development of each individual member of the family*. The success of homemaking is measured in the end by the type of human beings that emerge from the home. Certain conditions must exist if there is to be the best development of family members. For example, right physical standards and reasonable social standards need to be established and then maintained; financial solvency should exist, and there is need for cooperation within the family group and with the community. These conditions can be furthered by a realization that tasks are important or otherwise, according to their contribution to the ultimate aim of homemaking—the best development of family members. In other words, the relative values of housekeeping tasks vary greatly as they are measured against this aim.

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<sup>15</sup> Hunt, C. L. *Home problems from a new standpoint*. Boston, Whitcomb and Barrows, 1913, p. 11.

<sup>16</sup> Prepared by Mildred Weigley Wood, Director, Home Economics Education, Phoenix Union High School, Phoenix, Arizona.



### Determination of Real Values Involves Setting up of Standards

The determination of real values is a managerial responsibility of homemaking. It requires, first of all, the establishing of desirable standards for a family. It is obvious that standards for housekeeping need to be based upon family well-being rather than upon tradition and convention. Recognizing the fact that "a desirable standard is one which contributes to health, financial solvency, contentment and development of family members"<sup>17</sup> helps to give a basis for determining the worth of a standard. The real value of a task, then, can be measured in terms of its contribution to a standard agreed upon.

For example, how well the dusting shall be done, how elaborate shall be the food preparation, what shall be ironed and what shall be left rough-dry, how time shall be scheduled, whether or not a dining-room rug shall be purchased before a chest of drawers for the child's clothing, what task shall be given greatest emphasis, can be determined only in terms of their contribution to the standard agreed upon which, in turn, has been set up in terms of its contribution to the development of family members.

Relative values differ and change. What appears to be the value of a task as measured against an accepted standard for one family may be quite different in another family. For example, the amount to be spent for housing, the time to be given to food preparation, the degree of skill with which clothing is constructed, the time spent in clothing selection, often vary considerably in families which seem to have many other points in common. Further, the significance of a task this year and next, in the same family, often changes. The value of the task of cleaning a house, in the home with several small children, has a very different relative value from that of the same task several years later when the older children are using the home as a social center for their friends. In the early period the physical development of children is the major consideration, determining what tasks shall be performed and how well they shall be carried out. Later the educational and social development of adolescent years may be the determining factor.

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<sup>17</sup> Wood, M. W., Lindquist, R., and Studley, L. A. *Managing the home*. Boston, Houghton Mifflin & Co., 1932, p. 21.



It is not uncommon, though unfortunate, to see the same values carried over from one home to another and from one period to another because relative values have not been wisely considered.

### **Determining How Well the Job Is Being Done**

There is always danger that homemakers involved in a maze of housekeeping duties may lose sight of their real job—family member development. For this reason housekeepers must ask themselves frequently, “Am I doing this too well, not well enough, or is it being satisfactorily handled?” That is, they need to see if they are establishing sound relative values. This can not be done by the woman homemaker alone, but requires the most thoughtful joint consideration of all family members in terms of what the task, as it is being carried on, is contributing to the present and the future generation. A recognition of sound relative values results first of all from an intelligent evaluation of policies being employed and those under consideration, in terms of the real aim of homemaking, and after that an effort on the part of all family members to promote them. Whether the right relative values have been ascribed to the housekeeping tasks, to the managerial activities, and to the guidance of family members can be checked by noting the contribution which the various activities are making to health, to financial security, to happiness, and to stimulation of family members.

## CHAPTER II

### THE HOUSE AND ITS EQUIPMENT

Satisfaction in home ownership depends in part upon the amount of work required to keep the house in order. Contentment is possible only when standards can be reasonably well attained without undue strain. The proportion of time and labor claimed by house-keeping may become excessive because the house and its furnishings involve an undue amount of labor. The size and arrangement of the house, the equipment provided, the storage facilities, and the materials and finishes used are important in the making or saving of work in the home.

#### INTERIOR DESIGN <sup>1</sup>

The size and arrangement of the house undoubtedly rank first among those factors affecting the work of the home. Mrs. Abel says, "Much of the deplorable waste seen in daily living comes from the use of houses planned, if planned at all, for conditions now outgrown." <sup>2</sup>

After analyzing the records furnished by the homemakers who cooperated in the Omicron Nu and Phi Upsilon Omicron study, L. P. Brinton in an unpublished thesis, "Keeping Time," drew the following conclusions:

"Housing can be a very great help, or an equally important source of more work and worry to the housekeeper. The chief difficulty is that the house does not grow up with the family. Of great importance is the age and condition of the house. A vital problem is the presence of persons other than immediate family members in the house, which must be stretched to accommodate them." <sup>3</sup>

In "A Study of Home Management in Its Relation to Child Development," Ruth Lindquist makes the following statement regarding the need for a house that fits the family:

"Good housing is of importance not only because the activities of the home can be greatly simplified, but also because family relationships are not subjected to such a severe strain where there is the op-

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<sup>1</sup> Prepared by Jean Muir Dorsey, Homemaker, Urbana, Illinois.

<sup>2</sup> Abel, M. H. *Successful family life on the moderate income*. Philadelphia and London, J. B. Lippincott Co., 1921, p. 90.

<sup>3</sup> Brinton, L. P. *Keeping time*. (Thesis.) Chapel Hill, Univ. of North Carolina, 1931.

portunity for privacy and for following one's interest without interruption."<sup>4</sup>

House planning and construction should be given careful consideration by all home builders in order to eliminate unnecessary fatigue in housework and in the care of children. Many household management and fatigue problems may be avoided by carefully planning the house, or by means of simple changes in the house already built. Keeping the house and equipment in good repair<sup>5</sup> will eliminate many annoying inconveniences and lighten the tasks of the homemaker. The following questions bring out some of the points that should be given careful consideration.

**General arrangement.** Is there spaciousness in the arrangement of the living area? Compactness in the working area? Does the arrangement of the house afford the privacy necessary for the optimum development of every member of the family? Is there easy access between the kitchen and front door? Rear entrance? Dining room? Laundry? Living room? Play room? Can the dining room be shut off from the living room for privacy in case of unexpected callers at mealtime? Can the stairs to the second floor be reached from the front door without passing through other rooms of the house? Is there a room on the first or second floor that may be used by the parents when the young folks are entertaining in the living room, or by children when the parents have guests? Is there a study or sewing room which can be used as a guest room? Is there especially planned play space for children, with plenty of light and sunshine and conveniently located for supervision? If not, are definite shelves, cupboards, or other spaces given them for their own use? Is there a place on porch, in basement, or in yards for apparatus for physical development and to encourage group play? Is there a suitable workshop for the boys in garage, basement, or elsewhere? Are there a lavatory and a toilet on the first floor? Are they located so as to be easily accessible and inconspicuous? Where the house is more than a single story, is there a laundry chute convenient to

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<sup>4</sup>Lindquist, R. *A study of home management in its relation to child development*. Omicron Nu and Phi Upsilon Omicron cooperating with the Committee on Child Development and Parental Education of the American Home Economics Association, 1929, p. 13.

<sup>5</sup>Phelan, V. B. *Care and repair of the house*. U. S. Dept. of Commerce, 1931. (Supt. of Doc., Govt. Print. Off., Washington, D. C.)



bedroom, bathroom, and kitchen? Are there ample and convenient storage spaces throughout the house? Is there a closet at the front entrance for the storage of wraps, rubbers, and umbrellas? Are hooks and shelves set low enough for children to wait on themselves? Is there a closet for storing cleaning equipment and supplies on both floors? Is there suitable storage for children's out-of-doors toys, wagons, bicycles, and baby carriage?

**Living room and dining room.** Is the living room large enough for family needs, and arranged to suit the interests and enjoyment of all the members, i. e., shelves and cupboards for young children's toys or books, a study corner for the older ones, a relaxation corner for the parents? If the house is located in a cold climate, is the living room protected from drafts by a vestibule to the front door? Are there both a dining room and a breakfast room? Is there any reason for both? If so, is the breakfast room so placed as not to increase the distance from kitchen to dining room?

**Bedrooms and bathrooms.** Is there provision for plenty of air circulation in bedrooms and bathrooms? Can each bedroom be reached without passing through another room? Is there sufficient wall space in each bedroom to place the bed conveniently for making, and also to avoid drafts? Is there a bedroom, or room that could be used as a bedroom, on the first floor? Is one bathroom sufficient? If there is only one bathroom, is it accessible without going through another room? Is the tub of the built-in type to facilitate cleaning? Is there a safety hand rail beside the tub? Has the toilet a small soiling surface and forceful water action?

**Kitchen.<sup>6</sup>** Is the kitchen conveniently located in relation to dining area, rest center, play space for children, front entrance, business shelf, telephone, laundry, and washroom? Is the large equipment arranged to save steps in preparing, cooking, serving, and clearing up after meals? Are there storage facilities for supplies and small equipment located around the working centers where they are used? Are the working surfaces and storage facilities at proper height to minimize stooping and stretching? Is there sufficient working surface at each work center? Is there

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<sup>6</sup> See p. 149.

toe room under all equipment at which the worker must stand? Is there knee room under the worktable, etc., so that the worker can sit comfortably? Is there a convenient place for deliveries of groceries and supplies? Is there provision for outside icing if ice is used? Is there a permanent drainage connection to carry away waste if ice refrigerator is used? Is there provision for carrying off fumes from gas range and oven if gas is used? Is there a convenient and sanitary arrangement for garbage disposal? Is the kitchen well lighted and ventilated?

**Basement and laundry.**<sup>7</sup> Is the basement easily accessible from both inside and outside of house? Is it dampproof? Are cellar windows screened and are there other precautions against household pests? Are the ceilings and pipes high enough to prevent one from stooping? Are there convenient fuel storage and openings for receiving fuel and removing ashes and trash? Is the coalbin dustproof? Are there adequate facilities for laundry work in the basement or on the first floor (i. e., stationary tubs, washing machine, adjustable ironing board, drying space for clothes, water faucet above the gas plate for filling boiler, table, storage cabinet or shelves for laundry supplies, and floor drain)? Are the tubs set at a convenient height? Is the basement well lighted and ventilated? Is the drying yard conveniently located? Is there a dumb waiter to carry up the wood for stove or fireplace? Is there adequate storage space for vegetables, fruits and canned goods?

**Garage.** Is the garage conveniently located? Is it adequately lighted and heated? Is there a water supply and a floor drain? Are there shelves or cupboards for the storage of tools and supplies? Do the doors operate satisfactorily and lock easily?

**Porches, steps, and stairways.** Are the porch floors or terrace and doorsills made of material such as cement, stone, brick, tile or other material that is easily cleaned, requires little or no upkeep, and will stand the wear and tear of carts and toys? If there is an entrance porch or landing, is it large enough to stand on to open and close the door without having to step off the landing and on again? If there is occasion for frequently entering the yard, is there the inconvenience of several steps at outside

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<sup>7</sup> See p. 210.

entrances? Are all steps of comfortable width and rise? Are there any surprise steps that may cause one to stumble and fall? Are stairs, landings, and halls well lighted? Do the stairways have plenty of head room and sufficient space for moving furniture? Are they provided with hand rails at a convenient height? Is there safe and easy access to the attic?

**Doors and windows.** Are adequate air, light, and sunshine provided? Are the outside doors and windows snug fitting, weather-stripped, and screened, to exclude moisture, cold, and insects? Are the bedroom doors weather-stripped to keep heat in other rooms at night? Are the doors and windows placed so as to provide sufficient unbroken wall space for furniture? Are the upstairs windows high enough so that there is no danger of small children falling out when they are left alone? Do the doors swing in the direction to give the most usable space? Can all doors be opened without interfering with the opening of other doors or obstructing the light from windows? Are the door knobs set in far enough to prevent bruising knuckles on the door frame when closing the door? Do the locks work easily? Can all outside doors be unlocked with a single master key? Are the windows easily manipulated and cleaned? Is the glass clear and free from noticeable flaws?

**Walls, woodwork, and floors.** Are walls, woodwork, and floors of a finish easily cleaned, with plain surfaces free from seams, grooves, beading, and other soil-collecting features? Are the floors easy to walk on without danger of slipping? Is the floor of the entrance hall finished with waterproof material that is easy to clean and requires no upkeep, or are rugs used "to save" the floor? Are the outside doors finished in a color that will not readily show finger marks? If not, is the finish easily cleaned?

**Heating, plumbing, and insulation.**<sup>8</sup> Is an adequate heating system provided? Is there sufficient moisture for protection against colds and unnecessary fatigue? If not, might an air-conditioning feature added to your heating system improve conditions? Are the radiators or registers so located as not to interfere with the placing of furniture? Are the radiators hung on the wall or set into the wall for ease in cleaning floors? Are the

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<sup>8</sup> See *House design, construction and equipment*. Publications of the President's Conference on Home Building and Home Ownership, vol. V.



registers placed so as to avoid traffic over them? Does the water-heating system provide ample and readily accessible hot water? Are the drain pipes provided with traps which may be easily cleaned? Are the toilet and other traps easily drained when the house is to be closed? Is the house well insulated against both heat and cold? Are the heater and pipes in the basement properly insulated to conserve heat? Are exposed water pipes insulated against freezing? Is the house planned and constructed so that noise transmission between rooms is practically eliminated? Are electric motors for oil-burning furnaces, refrigerators, etc., silent or insulated against noise transmission? Are all fixtures durable and easily manipulated, cleaned, and repaired?

**Lighting and wiring.**<sup>9</sup> Are there adequate lighting facilities throughout the house, including closets, entries, stairs, etc.? Is the lighting free from either glare or gloom and from shadows on working surfaces? Are pilot lights (small red bulbs which indicate whether or not another light is on) provided for lights which cannot be seen from the main rooms of the house, as at the head of the basement stairs? Are there a sufficient number of switches? Are they placed so that they can be easily located in a dark room? Are they of convenient height for children? Are there a sufficient number of convenience outlets? Are they located where most needed? Are they at such a height to avoid cord tangling, reaching, and stooping in connecting electric appliances or lamps? Are they the duplex type so that appliances can be attached without disturbing lighting connections? Are the lighting fixtures suitable and simply designed, free from ornate soil-collecting features? Are hanging fixtures placed sufficiently high? Are wires leading into the house, underground? Are electric fixtures so arranged and equipped as to eliminate danger of shock from touching sockets with wet hands? Are meters placed so that they can be read from the outside of the house? Are the telephone and door bells audible in all parts of the house? Is the telephone centrally located? Is an extension needed for saving steps? Is there provision for privacy in telephone conversation?

Mr. N. S. Perkins, in discussing points of selection for the prospective purchaser of a home, says:

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<sup>9</sup> See *House design, construction and equipment*. Publications of the President's Conference on Home Building and Home Ownership, vol. V.

"As you enter the house, remember again to distinguish between the essential and the superficial. Certain features which may appear objectionable can often be easily corrected. Novelties and luxuries, labor-saving devices and conveniences, can usually be added to a structurally sound house; but serious structural defects are difficult and expensive, if not impossible, to remedy."

And again in considering specific points in regard to the plan of the home, he says:

"If these items seem like trifles, remember that an accumulation of such trifles may change your ordinary household duties into a deadly drudgery."<sup>10</sup>

### STORAGE SPACES<sup>11</sup>

Successful housing involves the provision of adequate storage facilities throughout the various parts of the house. This is essential to the well-ordered living of the family within its home. Well-planned and properly organized storage spaces contribute to orderliness and aid in facilitating the work of the home. Failure to provide these conveniences, or to use them, makes for confusion and for discontent with a house otherwise satisfactory.

Convenient storage must be designed for articles in regular use as well as for those "stored away" for occasional use. The appearance of rooms cluttered with newspapers, wraps, clothing, toys, tools and other objects; the time wasted in searching for misplaced articles; and the unpleasant emotional state of the baffled searcher give rise to disturbance and discord and lower the family morale. A further consideration is the wear and tear on articles left lying about without proper care and protection.

The necessity for storage, the location, kind, and space required, is preferably taken into account when the house is being planned. Frequently there are spaces which, with little thought, effort, and small expense, can be converted into useful closets. Space under the eaves, under the stairs, near chimneys, in corners, in furred-out walls, or the entire ends of rooms, often can be used to good

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<sup>10</sup> Perkins, N. S. *How to judge a house*. U. S. Dept. of Commerce, 1931, p. 27, 29. (Supt. of Doc., Govt. Print. Off., Washington, D. C.)

<sup>11</sup> Prepared by Blanche L. Lee, State Home Demonstration Leader, Montana State College, Bozeman, Montana, and Effie I. Raitt, Head, Department of Home Economics, University of Washington, Seattle, Washington.



advantage for cupboards, closets, and other built-in conveniences. The tendency toward smaller, more compact houses, and the elimination of attic and cellar make it especially important to plan for adequate storage places at the time the house is built.

More efficient use of existing closets and other storage space is made possible by the addition of hooks, rods, shelves, drawers, cleats, racks, and partitions. Such devices serve also to identify the space allotted to different articles. "A place for everything and everything in its place" should be the rule.

Certain principles are fundamental to good storage arrangements. Recommended practice is based upon the following:

1. In general, articles should be stored near the place they are to be used. Preference should be given to things used most often.
2. The necessity for stooping and high reaching should be avoided in storage of articles used frequently.
3. Articles should be so arranged that each may be removed or replaced without handling another.
4. Protection from deleterious conditions such as dust, sun, moisture, vermin, and bacteria should be provided.
5. Waste space should be avoided by planning each storage unit to fit the size, shape, and position of articles to be stored.

### Conditions Governing Storage

**Cost.** The amount of money to be expended is an important consideration in planning storage space. Large general closets may replace several smaller cabinets at considerably less cost. If such closets are well located and have definitely arranged and equipped spaces allotted to the different articles, they may be quite as convenient as many smaller units and are more easily adapted to various uses. In planning for built-in features it is also well to investigate the cost of ready-made cabinets now available.

**Geographical location.** Whether or not a house has attic and basement space available for storage may be dependent upon the geographical location. Where attic space exists it may well be utilized for storage. Basement space is usually economical of construction, and satisfactory except where an excavation of solid rock is necessary or where the water level is too high to insure a dry condition. In cold climates, where it is necessary to extend the foundation below the frost line, a basement is not only desirable but essential.

**Size, and habits of family members.** Individual habits, likes

and dislikes, and size and age of family members affect the nature and number of articles to be stored, and consequently the size and shape of storage space required. For this reason, it is almost impossible to set up a standard recommendation for the size, shape, and nature of storage space which will be universally usable and satisfactory.

**Size and shape of space.** The size and shape of space available for storage are largely dependent upon the entire house plan. A good rule to observe is that space should be, if possible, large enough to permit easy entrance, or else be of such a shape and size that articles can be seen readily and reached from the doorway.

**Light and ventilation.** Light, both natural and artificial, and some means of ventilation are desirable for most storage spaces. Some fabrics, however, need to be protected from light to prevent fading. For this reason a well-fitted, adjustable shutter is better than a glass window for closet use.

**Protection from vermin, dust, etc.** All storage space is best made as nearly air-tight and dust and vermin-proof as possible. Special inner doors for spaces provided for storage of bedding, furs, etc., are desirable for this reason. Metal-lined chests and closets are desirable though not essential to good storage. Proper cleaning of articles to be stored is essential to any method used.

**Finishing materials.** Finishing materials used in closets should be those which are easily kept clean. Painted, varnished, stained, or shellacked surfaces and linoleum are therefore best. Metal cabinets when of good quality are very satisfactory, although possibly more expensive than wooden ones.

**Organization and utilization of space.** Abundant space, if poorly utilized, fails to give the satisfaction which can come from good organization of materials to be stored. It is well to list or assemble the different articles and literally build a storage place around them. Drawers should be sufficiently shallow, partitioned if necessary, easily operated, and nonsagging. Depths of shelves should be suited to the specific commodities stored. Adjustable shelves are recommended to eliminate waste space between shelves. Doors should be arranged so as not to interfere with the use of any part of the cabinet construction or with other pieces of equipment. Articles are more easily located if those of a similar

nature are grouped together. Labeling of articles stored for some time is a good practice. Listing or card cataloging may be worth while in large homes or where a number of people are concerned with the operation of the home. Frequent discarding of articles seldom or never used releases space for those used more regularly.

### Kinds of Storage and Suggested Locations

(Exclusive of kitchen and other work centers<sup>12</sup>)

Storage spaces are of two kinds: Built-in and movable. The data presented herewith are conceived as (1) primary needs and (2) desirable additions to orderly living in the modest single-family dwelling—for the family of two or more adults with at least one child. Modifications would doubtless be advisable for families of different incomes and composition and for those living in other types of dwellings.

#### Built-in Storage Spaces

##### *Primary Needs*

Coat closet: Near the front entrance.

Clothes closets: At least one in each bedroom; preferably one for each occupant.

Linen closet: Near bedrooms and bathroom; preferably in hall.

Space for table leaves if not stored in table: Near dining room.

Closet or cabinet for children's toys: Playroom, living room, den, or bedroom, depending upon plan of house, and room most used by children for play.

Cleaning closet for second floor: Preferably in hall. (Note: Cleaning closet on first floor is included in report of the Committee on Kitchens and Other Work Centers. Vacuum cleaner will be stored on first floor.)

Medicine cabinet: (Separate from closet for toilet supplies.) In bathroom or master's bedroom; in furred-out wall.

Bathroom cabinet: Over bowl in bathroom; preferably in furred-out wall.

Laundry chute: When house is more than single story, near bedrooms and bathroom, preferably in hall.

Storage closets: Wherever most convenient—in attic or basement if there are such. Basement, garage, or back-porch closet for out-of-doors equipment; basement, attic under eaves, or other suitable space for trunks, unused baby carriage, etc.

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<sup>12</sup> For information on kitchen storage space see p. 184.



*Desirable Additions*

Coat closet: Near back entrance. This is especially appreciated in rural homes, and whenever rear yards are used frequently.

Bathroom storage closet: Any available space opening into bathroom.

Ventilated closet in bathroom: On outside wall, possibly under window, unless steam or hot-water heat is used, in which case the radiator should have this location. This closet may be combined with bathroom storage closet if it is ventilated.

Additional storage closets: Any available space for sewing equipment, supplies, and materials, out-of-season garments, etc. Space might here be allotted to storage of keepsakes and photographs in portable labeled boxes, or in drawers labeled with lists of contents. One can be reserved for out-of-doors garden tools, golf clubs, guns, fishing equipment, baseball bats, children's wagons, window screens, and similar articles.

**Either Built-in or Movable Furniture for Storage<sup>13</sup>***Primary Needs*

Book cases: Should be a part of design if built-in. In the small house, in the living room; in library or den, where such rooms are provided; possibly in bedrooms, if heated.

Dining-room closet, sideboard or movable china closet: In dining room, preferably flush with walls. Openings from both kitchen and dining room are convenient. The articles stored in the dining room are the less used articles. Every-day china, silver, and linen, if used in the breakfast alcove or kitchen, are stored in the kitchen or near the alcove. Dishes such as vegetable dishes and platters which must be warmed before using are best stored in the kitchen.

*Desirable Additions*

Blanket and comforter closet, chest, or dresser: If built-in in hall or larger storage closet, usually desirable to combine with linen closet.

Closet for sewing equipment and supplies or dresser provided for this purpose: In room or opening into room where sewing is done.

Flower closet: Portion of cupboard for vases and other containers, near table that can be used for flower arrangement; near water supply.

Music closet or cabinet: Near piano, Victrola, or other musical instruments; might be combined with built-in book cases.

**Movable Furniture Provided with Storage Space**

Paper and magazine rack or space on library table: In each room in which magazines and papers are read.

Desk or library table: This will depend upon family habits. In general, provision should be made for a desk or desk table in the living room of

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<sup>13</sup> Movable furniture can be changed easily, both as to location and type, and it is usually less expensive than built-in furniture.



the modest home; in library or den of the larger home. It may also be desirable to provide similar furniture for certain of the bedrooms. The children should have a convenient place to study.

Filing space: In separate units or as part of the desk or library table. A wall safe may be necessary for business papers, or a portable strong box may be adequate. The same conditions as for desk or library table should determine the location.

Keyboard: A keyboard with hooks labeled with name and number of key is desirable.

## MATERIALS AND FINISHES <sup>14</sup>

The attractiveness of the home depends to a large extent upon the materials and finishes that are used in its construction, especially with regard to exposed surfaces. In the selection of such materials careful consideration should be given to first cost, the expense of upkeep, and the amount of work involved in their care. No systematic study has been made of the various kinds of finishes and their care; and due to this lack of specific information, the housewife is often unable to select wisely the proper finishing materials and determine the care necessary for any particular finish. Under existing conditions the housekeeper is too often guided in her choice of cleaning reagents merely by well-worded trade names and slogans having a popular appeal. As the care of surfaces constitutes a large part of housekeeping activities, it is evident that this subject should receive more careful consideration. The condition in which surfaces are kept, together with general orderliness, fixes the standard of housekeeping.

In recent studies the care of surfaces is listed as the most disliked of household tasks. No other work in connection with homemaking affords less opportunity for relief by use of outside agencies. Better understanding of these problems should remove at least part of the drudgery factor through correct procedures resulting in saving of time and energy and improvement in the condition of the house and its furnishings. Classification on the basis of common properties of materials, finishes, and cleaning reagents might well be the first step in establishing this important division of housekeeping on a more scientific basis.

The following lists include materials and finishes likely to be found in the house:

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<sup>14</sup> Prepared by Vincent B. Phelan, Bureau of Standards, Washington, D. C.

### Materials

Aluminum	Marble	Stone, cast
Asbestos coverings	Monel metal	Stone, cobble
Brass	Paper	Stone, quarry
Bronze	Pewter	Stucco
Brick	Plaster, smooth	Terra cotta
Cement, Keene's	Plaster, sand finish	Textiles, napped
Composition floor	Plaster, colored	Textiles, pile
Concrete	Plaster board	Textiles, plain woven
Copper	Rubber	Textiles, knitted
Cork	Rubber, composition	Tile, porch
Glass	Silver	Tile, structural
Hardware	Steel	Wall board
Iron	Steel, stainless	Wall paper
Linoleum		Wood

### Finishes

Enamel	Lacquer	Stain
Enamel finishes	Leather finish	Textiles, burlap, etc.
Enamel, black stove finish	Oil	Varnish
Filler	Paint, oil	Veneers, brick
Fumed wood	Paint, water	Veneers, cast stone
Glazed fabrics	Paint, plastic	Veneers, cut stone
Glazed tile, ceramic	Plating, silver	Veneers, stucco
Glazed tile, composition	Plating, nickel	Veneers, terra cotta
Smooth tile, ceramic	Plating, chromium	Veneers, wood
Glazed brick	Porcelain	Wax
	Shellac	

Organization into divisions based upon similarity of care required and the detergent best adapted to each type of soil and surface, is the task of the technical expert. The Bureau of Standards and the Bureau of Home Economics have already made valuable contributions in this field. There is still need, however, for a practical handbook for the housewife, which shall include under one cover a complete schedule of surfaces, soils, detergents, and methods of treatment. Such a handbook not only would aid the housewife in her cleaning tasks but would enable her more intelligently to specify or demand durable and readily cleaned surfaces when building, buying, or renting a house.

## CHAPTER III

# MANAGEMENT OF HOUSEHOLD OPERATIONS

## ANALYSIS OF THE RESPONSIBILITIES OF THE HOMEMAKER<sup>1</sup>

Homemaking is made up of routine household tasks and skillful, judicious, imaginative management. Routine tasks, to be well done, require manipulative skill. Good management is based on the ability to make wise decisions and choices when confronted with optional situations. In other words, the homemaker is both the worker and the manager, the skilled craftsman and the pattern maker.

In studying the problems of household management, it is necessary first to understand clearly and in some detail what the homemaker's varied tasks are. In many homes these responsibilities are shared by various members of the family. An analysis of the job of homemaking is shown in the following list, in which there have been grouped separately the activities requiring managerial ability and those that call for manipulative skill:

### *Jobs that require managerial ability* (Planning and mental decisions)

- Setting up the pattern for family life, including community relationships
- Establishing wholesome family relationships
- Managing money income through:
  - Keeping accounts
  - Planning expenditures and savings
- Purchasing or ordering food, furnishings, equipment, and clothing for the family
- Planning for adequate housing, storage space, and grounds
- Establishing standards for house-keeping

### *Jobs that require skill* (Knowledge and physical activity)

- Care of food:
  - Preparing and serving meals
  - Clearing table and washing dishes
  - Other care
- Care of house and surroundings:
  - Cleaning and straightening
  - Care of fires
  - Care and repair of equipment
  - Repair and upkeep of house
  - Care of grounds and garage
  - Other care

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<sup>1</sup> Prepared by Jean Muir Dorsey, Homemaker, Urbana, Illinois.



Planning use of time for self and workers through:	Care of clothing and furnishings:
Time records	Sewing and mending
Time and task studies	Laundering
Scheduling of work	Dry-cleaning
	Other care
Supervision of homemaking work of members of the family and paid workers	
Training children—physical and mental development	Physical care of members of family:
Safeguarding family health	Children
Cultivating aesthetic appreciations	Other members of family
	Self

Analysis of the outline immediately suggests many interrelationships between the different activities and responsibilities. It is clear that plans for one activity can not be made without considering their effect on other plans or on other work of the household. The management of the family income, for example, is more than account keeping and the purchasing of supplies and equipment; it involves the weighing of needs and desires, the making of decisions and choices, and the careful consideration of their effect upon other plans and the life of the family. In a similar way the management of household operations includes a variety of factors. The amount and kind of work to be done; the extent to which the work is shared by the members of the family, paid help, or outside agencies; the time spent in homemaking tasks; the methods of work and other factors influencing the time spent—all are important considerations in the management of the work of the home.

### TIME SPENT IN HOMEMAKING TASKS <sup>2</sup>

How shall the homemaker divide her time so as to meet in the most satisfactory way the responsibilities listed in the above outline? Suggestions may be gained from an analysis of various studies of the use of time by homemakers and the factors influencing the time spent.

Notable among the studies made of the use of the homemaker's time are those carried on by the Bureau of Home Economics of

<sup>2</sup> Prepared by Jean Muir Dorsey, Homemaker, Urbana, Illinois.



the United States Department of Agriculture and by the Agricultural Experiment Stations of Idaho, Oregon, Rhode Island, South Dakota, and Washington, in cooperation with the Bureau. These studies are based on weekly records of time expenditure kept by more than 2,500 rural and urban homemakers living in various parts of the country.

### Time Spent in Various Kinds of Work

The following figures summarize the average time spent by four groups of homemakers included in the Bureau of Home Economics study.<sup>3</sup> The two rural groups are representative of the farm and village homemakers with whom the Extension Service is in touch, while the city groups represent the moderately well-to-do housewife of the business and professional class.

### The Homemaker's Working Week

#### In Representative Rural Homes

	559 farm homemakers	249 other rural homemakers
	Hours	Hours
Purchasing and management.....	2.2	2.7
Care of family.....	3.9	4.7
Preparing meals.....	15.2	13.9
Clearing away meals.....	7.6	6.8
Care of house.....	9.6	9.4
Laundering .....	5.3	5.2
Mending .....	1.5	1.4
Sewing .....	4.0	4.8
Other homemaking.....	2.3	2.6
Total homemaking.....	51.6	51.5
Farm and other work.....	9.6	4.5
Total work.....	61.2	56.0
Help received in homemaking.....	9.3	9.6
Average size of household (persons).....	4.3	4.0

<sup>3</sup> Data supplied by Hildegard Kneeland, Economics Division, Bureau of Home Economics, United States Department of Agriculture.

## In City Homes of the Business and Professional Class

	178 home- makers in cities of 50,000 to 250,000 population	222 home- makers in cities of 250,000 population or more
	Hours	Hours
Purchasing and management.....	4.2	5.3
Care of family.....	9.8	9.3
Preparing meals.....	9.9	8.3
Clearing away meals.....	4.7	3.4
Care of house.....	7.4	7.2
Laundrying.....	3.2	2.5
Mending.....	1.5	1.4
Sewing.....	2.6	2.7
Other homemaking.....	4.3	4.8
Total homemaking.....	47.6	44.9
Other work.....	2.0	2.4
Total work.....	49.6	47.3
Help received in homemaking.....	30.5	36.6
Average size of household (persons).....	4.0	3.9

According to these figures, the working week of the rural homemakers is considerably longer than that of the city groups studied, averaging 61.2 hours a week in the farm homes as compared with 47.3 hours in the larger cities. This difference is due in part to the time which the rural homemakers give to the care of poultry and milk, to gardening and to other farm tasks. But it is also due to the fact that almost all of the work of the rural household is done by the homemaker herself, while in the city homes studied a large amount of paid help is employed. The farm homemakers received only 9.3 hours of help a week, on the average—1 hour from paid workers and 8.3 hours from other members of the household. The homemakers living in the larger cities, however, received an average of 36.6 hours of help a week, 31.8 hours of which were given by paid workers.

In view of this marked difference in the amount of help received by the rural and urban homemakers, the time spent in housekeeping tasks differed surprisingly little. The farm and other rural homemakers spent slightly more time in the care of the house, laundering, and sewing than the city homemakers, and considerably more

time in preparing meals and dishwashing. When the help given by paid workers and others is included, however, these differences disappear, except in the case of sewing. In fact, if allowance is made for the larger average size of the farm households, a little more time is spent on meals, the house, and laundering in the city homes.

The city homemakers, because of their greater amount of help in housework, have more free time to devote to their children. They spent fully twice as much time in the care of children as the rural homemakers, and received more help with the children in addition.

In the other major homemaking activities—purchasing and management—the city homemakers also spent twice as much time as the rural women. Some of this difference may be accounted for by the fact that the farm homemaker is more likely to leave to others much of the purchasing of food and supplies for the family. Then, too, the amount of food that is produced on the farm to some extent decreases the quantity that the homemaker needs to buy.

Although the actual hours recorded for management and purchasing by all groups seem few in comparison to the hours spent in other activities, it is no doubt true that many minutes are given to management during the performance of routine tasks that cannot be estimated. When tasks have become standardized and are more or less automatic, the worker is left free while performing these tasks to plan ahead. And probably in most homes it is these “management moments” that make the smooth-running household.

Further analysis of the records makes it possible to ascertain the variations in time distribution that are associated with differences in size and composition of the family, the amount of help in the household, the season, the use of commercial agencies, the house and its equipment, and other factors.

### Effect of Size and Composition of Family

No other factor affects the homemaker's working schedule so much as the care of children. Even when considerable paid help is employed, the mother with small children has an unduly heavy working week, especially when the youngest child is still an infant. The time which she gives to other homemaking tasks is usually very little reduced, so that the care of the children is added to a schedule already reasonably full, if not overcrowded.



In the city households studied by the Bureau of Home Economics, the homemakers with children less than a year old spent 58 hours a week, on the average, in their various tasks, in spite of the fact that over 40 hours of help were given by paid workers and members of the family. In the farm homes where little help was available, the mother's working hours averaged 74 a week when the youngest child was under a year old. These figures do not include the time which the mother spent with the children out-of-doors, although much of this time may be considered an essential part of their care.

### Amount of Help Received

In these city households, the amount of help was fairly constant during the period when the children were growing up, most of it being given by paid workers. In the farm homes, however, where the help came almost entirely from members of the family, the amount given was doubled when there was an infant in the family; although even then it averaged only 19 hours a week. Of the entire group of farm homemakers studied by the Bureau, only 29 employed any paid help whatsoever, and half of these had service for less than 7 hours a week. More than three-fourths of the city households, however, had some paid help.

### Effect of Equipment on Time Expenditure

Analysis of the effect of equipment on the time spent in certain routine tasks by the farm homemakers included in these studies of the Bureau of Home Economics and various State Experiment Stations shows little difference between the time spent by homemakers who have good and those who have poor equipment.

In the study made by the Washington State Agricultural Experiment Station, a comparison of the time spent per day in dishwashing in 50 homes equipped with running hot and cold water with that spent in dishwashing in 44 homes with no pump or running water in the kitchen showed that the same amount of time was spent by both. In 4 homes with only pumps in the kitchen, slightly less time was used than in the other homes. No time saving was shown in preparing meals in those homes with running water.<sup>4</sup>

In washing, there was some time saving when washing machines

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<sup>4</sup> Arnquist, I. F., and Roberts, E. H. *The present use of work time of farm homemakers.* Wash. Agri. Expt. Sta. Bul., 234, 1929, p. 26-27.



were used, but not to the extent one might expect. The time spent in ironing was practically the same, whether electric, gas, or hand irons were used. The time spent in sweeping with a broom, a hand sweeper, and a power sweeper varied only slightly.

Similar results are reported with the other rural groups studied.<sup>5,6</sup> The explanation undoubtedly lies, in part, in the tendency of homemakers to use the improved equipment to raise their standards of housekeeping rather than to save time. To a certain extent also they may take advantage of the equipment to ease the strain of work by working more slowly. With some types of equipment, moreover, the chief advantage lies not in reducing the time required but in lessening the fatigue or discomfort of the task.

The extent to which electrical equipment may save the homemaker's time, if she uses it to this purpose, is suggested by a study made at the Illinois Agricultural Experiment Station. In making this study, a week's record of the time devoted to household tasks, to recreation, and to sleeping, by the women of five of the test farms, was taken before electrification, and another week's record a year later.<sup>7</sup> While no definite conclusions can be drawn from records covering so short a period and kept by such a small number of women, certain tendencies may be noted:

The vacuum cleaner saved from 1 to 5 hours weekly in caring for the house.

Better laundry equipment saved from 1 to 4 hours a week.

The time spent on dairying and in the garden was from 1 to 10 hours more a week after electrification than before. This would indicate that a large part of the time saved by using electrical appliances in the home was used in income-producing work.

### Seasonal Variations

The effect of season on the homemaker's work is, of course, especially marked in the farm households, where gardening, care of poultry, and other outside tasks become much heavier during

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<sup>5</sup> Whittemore, M., and Neil, B. *Time factors in the business of home-making in rural Rhode Island*. R. I. Agri. Expt. Sta. Bul., 221, 1929, p. 18-20.

<sup>6</sup> Wilson, M. *Use of time by Oregon farm homemakers*. Ore. Agri. Expt. Sta. Bul., 256, 1929, p. 31-39.

<sup>7</sup> Lehmann, E. W., and Kingsley, F. C. *Electric power for the farm*. Ill. Agri. Expt. Sta. Bul., 332, 1929, p. 403.

certain months of the year. In the study of farm homemakers made by the Oregon Agricultural Experiment Station, January was found to be the easiest month for farm tasks, requiring on the average only 4.8 hours a week, while in July the average time increased to 17.9 hours.<sup>8</sup>

For homemaking tasks, the seasonal variation was very slight in these Oregon households, and similar results appear in the Experiment Station studies in South Dakota<sup>9</sup> and Washington.<sup>10</sup> The chief differences occur in the time spent in the preservation of food, in care of fires and house surroundings, and in purchasing (other than food). For some housekeeping tasks, such as extra cleaning and mending, slight month-to-month variations appear which may be due to the effort of the homemaker to level her work periods.<sup>11</sup>

The use of commercial agencies as a means of reducing the demands of housekeeping is considered in the section on "Substitute Services." The work done in the modern home is further considered in the section on "Home Production."

## SCHEDULING HOUSEHOLD TASKS<sup>12</sup>

The making of a workable household schedule is one of the homemaker's most difficult tasks. In a large measure, successful family life depends upon her ability to determine the most effective use of her time in terms of family well-being and to work out with the family group a plan in which the needs and desires of each member are considered and in which each participates. Distributing the homemaking load shortens the work day for the homemaker and avoids much of the nervous strain that results from accumulated work, as well as the friction and worry that come from a lack of understanding among the family members.<sup>13</sup>

The greatest value of such a schedule is in the feeling of mastery

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<sup>8</sup> Wilson, *op. cit.*, p. 33.

<sup>9</sup> Wasson, G. E. *The use of time by South Dakota farm homemakers.* S. D. Agri. Expt. Sta. Bul., 247, 1930, p. 8.

<sup>10</sup> Arnquist and Roberts, *op. cit.*, p. 13.

<sup>11</sup> Wilson, *op. cit.*, p. 31.

<sup>12</sup> Prepared by Jean Muir Dorsey, Homemaker, Urbana, Illinois.

<sup>13</sup> Frederick, C. *Household engineering.* Chicago, American School of Home Economics, 1923, p. 85-95.

and confidence which it gives to the homemaker, rather than in following it to the letter. A schedule takes away much of the uncertainty and nervous strain in housework, and eliminates needless repetitions of directions to the household helper or to members of the family, thus resulting in a more harmonious relationship for all.

To be successful, the plan must provide:

1. Flexibility and adaptability to emergencies, unexpected interruptions, or a shift in daily or weekly plans.
2. Sufficient time to accomplish each task satisfactorily without squandering effort.
3. A definite time for rest and recreation, and the balancing of work and rest periods so as to eliminate unnecessary fatigue.

No single schedule, no matter how carefully planned, will meet the needs of every home. Although most routine tasks are generally similar, conditions vary greatly; the importance of one piece of work is greater in one household than in another.<sup>14</sup> One family may number five or more, another only two. The location of the home and the house construction itself may either increase or lessen the amount of work to be done. The hours of meals, the feeding schedules of babies, the occupation of the father, and the managerial ability and skill of the homemaker, as well as many other factors, have a direct bearing upon the plans and methods of daily housework.

### Recording and Analyzing Time Expenditures

The homemaker who has not made a satisfactory adjustment of her time problems will find the timing and recording of activities to be helpful in determining the time required and available for their accomplishment.

*Chart 1* is suggested as one method by which a homemaker can keep account of a week's time expenditures, as a basis for making a schedule. It is obvious that each family would have to adjust the items of the chart to meet its individual needs. Detailed records of those tasks which are repeated at different times of the day may be kept separately and summarized on this chart at the end of the day. With very little effort, the totals of this record may be interpreted in the form of a bar chart from which a homemaker may see her real time problems. (See *Chart 2*.)

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<sup>14</sup> Salisbury, E. *The housekeeper's schedule*. Ariz. Agri. Ext. Serv., Circ. 9, 1916, p. 2.



# Chart 1. A Schedule for Recording Time Spent in Home-making and Other Activities over a Week's Period

(Classification of Activities Adapted from that Used by the Bureau of Home Economics)

Activities	Monday		Tuesday	
	Hrs.	Min.	Hrs.	Min.
TOTAL ACTIVITIES				
TOTAL HOMEMAKING				
MANAGEMENT (total)				
Planning expenditures				
Planning use of time				
Planning for development of family				
Other planning				
Training children				
Supervising household workers				
Purchasing				
Other management				
FOOD (total)				
Preparing meals				
Breakfast				
Dinner				
Supper or lunch				
Clearing away meals				
Breakfast				
Dinner				
Supper or lunch				
Other care and preparation of food				
HOUSE (total)				
Cleaning and straightening				
Care and repair of equipment				
Care of fires				
Care of house surroundings				
Repair and upkeep of house				
Other care of house				
CLOTHING AND TEXTILES (total)				
Sewing and fancy work				
Mending				
Regular washing				
Regular ironing				
Extra laundry				

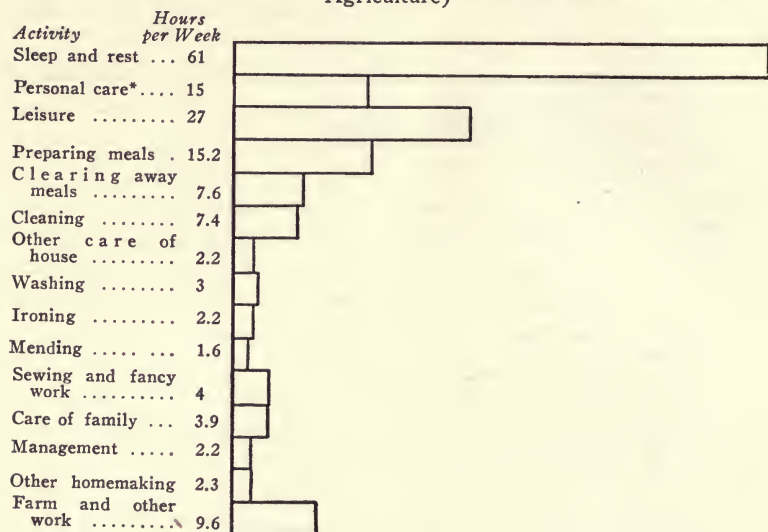


Chart 1—(Continued)

Activities	Monday		Tuesday	
	Hrs.	Min.	Hrs.	Min.
Dry-cleaning				
Other care of clothing and textiles				
CARE OF MEMBERS OF HOUSEHOLD (total)				
OTHER HOMEMAKING				
FARM WORK (total)				
Gardening and fruit growing				
Poultry				
Dairy work				
Livestock				
Field crops				
Farm management				
Other farm work				
PAID WORK (total)				
Inside home				
Outside home				
CARE OF SELF (total)				
Sleep and rest				
Night				
Day				
Eating				
Breakfast				
Dinner				
Supper or lunch				
Other				
Personal care				
LEISURE (total)				
Reading				
Meetings and study				
Work for organizations				
Listening to radio				
Informal social life				
Social affairs and entertainments				
Outings and sport				
Other leisure				
GOING AND RETURNING				
MISCELLANEOUS ACTIVITIES				
UNACCOUNTED FOR TIME				

## Chart 2. Time-Spending Pattern of 559 Farm Homemakers

(Data supplied by Bureau of Home Economics, U. S. Department of Agriculture)



\* Eating, bathing, dressing, and medical and other care of self.

Having made such a record of her own time expenditures, it will be helpful to compare it with the figures and charts of other homemakers and with the averages for a group of homemakers. A careful analysis of these time-spending patterns will bring up such questions as these:

1. Am I placing my emphasis in homemaking where it should be for maximum efficiency and pleasure in my work?
2. Am I spending enough time in sleep and rest? In recreation? In mental development? In personal care?
3. Can I reduce routine work by better planning or by transferring some activities to a paid helper or to outside agencies?
4. Are other members of the family sharing sufficiently in the home-making responsibilities?
5. How can I eliminate factors which cause worry, friction, and fatigue?
6. Can I work out a time schedule which will let me run my household rather than its running me?

### Making a Time Schedule

Whether a schedule is written or unwritten, there are several important things to keep in mind;

1. The order of the work that suits the health and time demands of the family is by far the most important thing.
2. The time when tasks are to be done and the amount of time required to complete each task should follow the order of work.
3. The tasks which require the use of small muscles that tire rapidly should be alternated with those tasks that make use of the large muscles.
4. Rest periods should be allowed at various intervals during the day.
5. The schedule should be sufficiently flexible to permit interruptions and still remain a reliable guide.

A carefully prepared written schedule soon grows into an unwritten one and becomes a part of the homemaker's every-day life—something to work by, yet adjustable to the every-day needs of the family. The bases for such a schedule are these:

1. A calendar, by months (see *Chart 3*) of:
  - Seasonal tasks—canning, gardening, poultry work, yard, flowers, extra meals during harvesting, etc.
  - Special tasks which may be done when seasonal work is not pressing—sewing for the household and family, special cleaning, painting, decorating, repairing of all kinds, other tasks.
  - Work for organizations, meetings and study, social clubs.
  - Other work—all work done for pay carried on either inside or outside the home.

2. Estimates of time needed for daily and weekly activities:
  - Averages of the time spent in similar types of households, as reported in various time studies, may be used as a basis to work from, but these should be supplemented by a personal time study.<sup>15</sup>

*Chart 3* is a calendar by months for recording seasonal and other special activities, as outlined in (1) above, over a year's period. This record is a forecast of the year's special tasks and is invaluable in planning the daily and weekly schedule.

The written schedule should also include (1) the weekly plan, and (2) the daily plan.

The weekly plan should allow time for:

1. Every-day tasks—planning, ordering, care of fires, marketing, meals, dishwashing, bedmaking, cleaning, care of family, outside chores.
2. Weekly tasks—planning, special cooking and baking, laundry, mending, cleaning, shopping.
3. One's personal requirements—rest, meetings, reading, social life.
4. Extra work for days not filled with daily or weekly tasks.<sup>16</sup>

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<sup>15</sup> Adapted from Wilson, *op. cit.*, p. 49.

<sup>16</sup> *Ibid.*

**Chart 3. A Calendar by Months for Recording Estimates of Time Needed for Seasonal and Other Special Activities over a Year's Period**

Type of work	Estimate of time needed for task											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Canning												
Gardening												
Poultry												
Yard and flowers												
Extra meals												
Care of milk												
Making butter												
Preparation of food for market												
Sewing												
Painting												
Repairs												
Meetings												
Social clubs												
Other work												

The following weekly schedule, while merely suggestive, may serve as a basis for a workable plan. The weekly tasks, such as laundering, mending, cleaning, and baking may be shifted easily to other days of the week in order to meet the needs of the household or to fit the work habits of the homemaker. The Sunday schedule will vary with community and family custom.

#### Daily activities

Planning

Routine duties

Care of children

Outside work

Rest and personal care

Leisure activities

#### Other activities

Monday: Washing; sprinkling; folding; putting away; ironing semi-dried articles if desired

Tuesday: Ironing; mending; marketing or ordering

Wednesday: Baking; special tasks

Thursday: Marketing or ordering; special tasks

Friday: General cleaning and dusting of bedrooms and living rooms; special tasks

Saturday: Baking; preparations for Sunday meals; cleaning kitchen and porch floors; special tasks



So many individual factors enter into the making of a *daily* schedule that each homemaker must work out her own detailed plan.

"The attempt to take over from someone else a schedule not suited to the family adopting it is likely to result in a disillusionment which makes the housekeeper assume a doubtful air toward all time schedules. The remedy is for the housekeeper to accept the idea of a schedule, to study others' schedules and then to make a schedule for herself and her family which will fit its peculiar set of needs, for each family *has* peculiar needs and this individuality is one of the things we want to preserve in family life."<sup>17</sup>

### EFFICIENCY STUDIES OF HOUSEHOLD TASKS<sup>18</sup>

Once a satisfactory schedule of work is planned, the homemaker should give careful thought to the way in which she performs the different daily tasks so that time and energy will not be wasted in useless motions and cumbersome methods of work. "There is no waste in the world equal to the waste from needless, ill-directed and ineffective motions and their resulting unnecessary fatigue."<sup>19</sup> Causes for unnecessary fatigue must be done away with in the home, since efficiency decreases when fatigue begins.

The laws of "scientific management" have not been generally applied to the work of the home, and while there are limitations<sup>20</sup> in carrying over these principles of industrial efficiency, laboratory studies of separate household tasks indicate that the time and motions required can be decidedly reduced. Of the three methods of working—rule-of-thumb, systematic organization, and scientific management—the last may be most stimulating as well as most time conserving, and tends to remove the drudgery element from housekeeping activities. The worker who applies the principles of scientific management, even in a simplified form, learns to look at the job as a whole, then to divide it into its separate units or basic divisions, and to examine each to determine where time and energy may be conserved. Applying these principles of efficiency to household tasks also aids in reducing

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<sup>17</sup> Wood, M. W. "Budget your time." *Delineator*, 109:21, 67, p. 21.

<sup>18</sup> Prepared by Minnie B. Cole, Homemaker, Madison, Wisconsin.

<sup>19</sup> Gilbreth, F. B., and L. M. *Applied motion study*. New York, Macmillan Co., 1919, p. 130.

<sup>20</sup> Kneeland, H. "Limitations of scientific management in household work." *Jour. Home Econ.*, 20 (5): 311-314, 1928.

psychological fatigue through replacing confusion by order, aimless worry by purposeful activity, and weariness by interest and increased pleasure in performing the task.

A fundamental requirement in arriving at methods of least waste is willingness to break with traditional habits.

"It is a commonplace that there are two effective means of reducing drudgery: one is to do each job under conditions of least waste, taking advantage of space-saving arrangements, time-saving methods, and effort-saving equipment; the second is to eliminate the job itself. The former may require money. The latter will require either money or an open mind, depending upon the avenue of elimination, that is, whether the job is relegated to a paid worker, to an outside agency, or to oblivion."<sup>21</sup>

The aim of time studies is to discover methods of least waste of time, effort, or money devoted to household tasks. The goal is the enrichment of family life through a wise use of the resources thus released.

Interest in time studies has been quickened through the investigation of the use of time by homemakers which has recently been carried on by the Bureau of Home Economics of the United States Department of Agriculture and by the Agricultural Experiment Stations of Idaho, Oregon, Rhode Island, South Dakota, and Washington in cooperation with the Bureau. Several theses have been written by students during the past five years on time studies of household tasks, such as the care of children, preparation of meals, dishwashing, and so forth.

Formal training in household management is offered by institutions of higher learning through courses in home management given under the direction of home economics departments. In many schools the classroom work is supplemented by practice in home management houses.

To secure information on what has been done on time studies in home management departments of universities and colleges and to learn more of the character of the home management or "practice house" operating under the direction of these departments, a questionnaire was sent to the various states.

The following report is based on replies obtained from 55

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<sup>21</sup> Heiner, M. K., and Vedder, N. M. "Studies in dishwashing methods: An attempt to apply methods of job analysis to a household process." *Jour. Home Econ.*, 22 (5): 393-407, 1930, p. 393.

home management departments connected with schools located in 34 states. Every section of the country is represented. The report throws some light on the extent to which time studies have been made, the kind of household tasks studied, the general methods used in making the studies, and the character and type of the home management house.

### Studies in Home Management Departments

Home management departments report 41 theses, monographs, and topical reports on time studies prepared during the last 10 years. Of 18 theses which analyze the time spent in the performance of household tasks, 5 report rather general use-of-time studies; 1 evaluates time expenditures in routine work; 1 reports a study of effect of speed upon quality of work in garment construction; 1 outlines a home management course adapted to homemakers living at home; and others deal with meal preparation and service, dishwashing, care of infants, and the relative efficiency of various types of household equipment. (Very little printed material on these time studies is available; but those studies which are typed or mimeographed can be obtained through the university library exchange system.)

These studies are of vital interest to homemakers in their efforts to conserve health and strength by the saving of time and energy in the performance of daily tasks. The general procedure followed in making these time and task studies is in accordance with the Taylor system of job analysis. The steps are as follows:

1. Scrutinizing present practices as a survey of the background.
2. Studying the methods, equipment, and time commonly used in the performance of the job.
3. Analyzing the job and dividing it into its essential processes.
4. Subjecting each process to a time and motion study to determine what may be eliminated, and where time and energy are wasted in the achievement of the desired end.

For comparison, the two methods are mapped on process charts. The present practice and the recommended method are thus clearly illustrated, indicating the elimination of unnecessary processes, the decreased number of motions, and the reduction of time in the improved method. The results of applying this analysis to discover conditions of least waste in dishwashing are given in the following extract from an article in the *Journal of Home Eco-*



nomics based on a thesis submitted by N. Maude Vedder at the University of Chicago:

**Average Number of Motions and Time Required to Wash a Day's Dishes for a Family of 4 According to 5 Methods Subjected to Analysis**

Method	Motions	Time	
I. Present practice: washing by hand 3 times a day.	1,954	Min. 38	Sec. 8
II. Synthesized practice: washing by hand once a day.....	1,367	31	2
IIf. Recommended synthesis: modification of II....	1,008	22	58
III. Washing by portable machine once a day.....	1,164	26	44
IV. Washing by stationary machine once a day....	1,015	22	31

"The contrasts between present practice (1) as here set up for analysis and the synthesized practices (II and IIf) possible for the same job with the same equipment, indicate the value of applying the analytical method to household jobs. Although it is possible, provided one is willing to accept the short-cut methods described, to arrive at a lower total requirement for both motions and time by hand methods than by machine methods, it must be granted that a comparison based wholly on motions and time required does not give a complete answer to the problem involved. If one cannot tolerate the sight of stacked dishes waiting to be washed (dishwashing once a day as contrasted with 3 times a day) or of washed dishes waiting to be used (leaving dishes in drain basket until needed as contrasted with cupboard storage), or has not enough dishes to take advantage of the synthesized practice, then in comparison with present practice a dishwashing machine is a saver of time and labor. For a complete answer to the problem, measurements of fatigue and of psychological reactions to the job are needed. Lacking these, the individual consumer must decide on the relative desirability of subjecting her hands to "hot soapy water" 3 times a day, once a day, or not at all, and consider the price she is willing to pay for the choice."<sup>22</sup>

### Studies in Home Management Houses

Home management houses are homes where groups of students live and work together as a family unit.<sup>23</sup> In these houses careful assignment and timing of home activities are especially necessary

<sup>22</sup> Heiner and Vedder, *op. cit.*, p. 406-407.

<sup>23</sup> The Home Management House Conference, Teachers College. *The home management house*. N. Y., Teachers College, Columbia Univ., 1927.



since students living here carry a regular schedule of school work.

The form of these studies is adapted in part from the investigational type of study of the home extension centers, and to some extent from the time and task studies of the home management departments.

Sample blanks and records contributed by directors and instructors show the following types of time studies:

1. Schedules of various kinds:

- Schedules of the routine work of the household.

- Daily schedules and records for the group manager and for each helper.

- Schedules for special problems such as child care, laundry, and extra cleaning.

- Personal schedules for each member of the group

2. Studies of the time required for various activities and tasks.

3. Studies of the time-saving which results from continued practice, and from the number of workers employed.

4. Studies on the effect of labor-saving equipment on the time spent in the performance of daily tasks.

5. Comparison of the use of time as planned and as carried out.

6. A simplified form of job analysis.

Such studies bring out the advantages of carefully planned, orderly procedures, of definite schedules, and of the sharing of tasks by various members of the household. Plans and studies which suggest the possibility of continued improvement are of value in provoking thoughtful performance, and sustained interest in any task prevents it from falling into the drudgery class.

During the past summer (1931), Edith Williams of this committee conducted time studies in table-setting and dishwashing at the Indiana University home management house.

The experiment in table-setting was an 8-day study comparing time used in the present practice of haphazard methods with the time required in a carefully planned standard practice. Job analysis was applied to the task. Conditions throughout were kept as nearly identical as possible for each of the 4-day periods. Results showed a saving of one-third the time in the standard practice as compared with haphazard methods, demonstrating the value of finding the conditions of least waste.

The dishwashing study compared the time spent when dishes were washed by hand and by machine. Typical meals were planned, all variables eliminated as nearly as possible under these home

conditions, a standard practice was worked out for each method, and the study continued for four days in each case. A simplified form of job analysis included studying the arrangement of the kitchen and dining room and the equipment used; dividing the job into its various processes or steps, listing the essential operations, specifying the variations in procedure, and noting the conditions common to both methods. Charts were made showing the time spent in the various steps and in the total time of the two methods. The test showed little difference in time spent when a dishwasher was used as compared with the hand method. But time must be regarded as only one factor.

The actual saving in time from improved technique resulting from such studies may seem insignificant for any single part of a job, but the real significance is demonstrated by the difference in the physical and mental condition of the worker at the end of the day when the toll of time-wasteful methods is felt. The amount of energy saved, physical and psychological, is a problem for future solution, but the psychological effect of the use of equipment on the worker seemed decidedly beneficial. Any device or method that adds interest to the job, or brings about a more cheerful atmosphere for the worker, has a value that can not be measured in dollars and cents. The real value is in the increased satisfactions, which are in turn reflected in family life.

### SHARING RESPONSIBILITIES IN THE HOME <sup>24</sup>

A simple schedule of tasks for each member of the household is an important step in building a comprehensive plan. The home is the center of life and activity of the family as a group. In and around it are centered our memories, and from it emanates an atmosphere created by its members and felt by those outside the group. Too often the home is dominated by the desire and plans of one or more of its members, usually the heads of the household; but sooner or later there comes the desire on the part of the other members of the family for self-expression, and if this desire cannot be satisfied at home, fields outside will be sought where such expression seems understood and appreciated.

Children, like adults, must be busy. If not employed along use-

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<sup>24</sup> Prepared by Mrs. A. J. Quigley, Homemaker, Seattle, Washington.

ful lines, they readily turn to outside interests. Attractive things are interesting things; therefore, if the household tasks can be made attractive, they will interest the child. Pride in his task and in the fulfillment of his duty creates a love for work. Children readily grasp and imitate the spirit with which older members of the group tackle their jobs. If the older members do their tasks happily, the children also feel a joy in sharing the responsibilities and work of the home.

Through imitation the first lessons are learned. Then a wise parent will allow the child to perform certain tasks as a reward of merit. The work and responsibility of the home, if correctly handled, become a step toward the development of character. Children learn to share responsibility for income management also through receiving regular allowances.

Responsibilities and privileges should be shared and developed together. Successful operation of this plan is doubtless best shown by case studies where such procedure is in actual practice. The following is an example of such a study.

### Case Study

Both father and mother are American-born and college graduates. The mother is a graduate librarian, and practiced and taught in this line until her marriage. The father graduated in electrical engineering. He followed this work for about 10 years, then changed to life insurance.

There are 6 children, all born within the first 10 years after marriage. There has been little sickness—measles, chicken pox, three cases of whooping cough, and six tonsil and adenoid operations, together with colds and minor cases of influenza.

For 7 years the family occupied a house of 5 rooms with bath. This was bought just before marriage. A liberal cash payment was made and the balance was covered by first mortgage. The second and present home was bought in like manner upon the sale of the first. It has 10 rooms, with full basement and partially finished third floor.

The work of the household is done by the family except for special work 2 or 3 days a year, and for the help of a gardener twice a year. A washing machine, vacuum cleaner, and other electrical labor-saving devices are used. In fact, all cooking, water heating, vacuum cleaning, and washing are done electrically. All laundering with the exception of the father's starched shirts and collars is done at home. All cooking and baking are done in the home with the exception of an occasional loaf of bread or cake for variety or for charity's sake. Most of the sewing is done by the family. Dresses, shirts, and other garments are



purchased when they are cheaper or better made commercially. When the children were small their sewing was all done in the home. Occasionally a seamstress was hired for the mother's clothes.

The children all share in the responsibilities of the home. Just as soon as they are able to do some small piece of work they are given that duty as their very own and thus are made to feel the joy of helping. They have emptied waste-paper baskets, carried cans and jelly glasses to the basement, dusted, swept, washed windows, made beds, cared for their rooms, washed and wiped dishes, helped serve meals, cleaned silver, ironed, sewed, cooked, kept walks and porches clean, mowed and trimmed the lawn, weeded the garden, run errands and performed many other occasional tasks about the home. They seemed to feel it a pleasure to share in the activities of homemaking. Like all other children, they have occasionally forgotten their duties and needed reminding; still the parents feel that they have done better than many adults might have done. The children's knowing that the father and mother could spend more time with them if they each had a hand in the work, has made them shoulder their responsibilities more cheerfully and regularly.

Each child has had an allowance since he was 4 years old, starting with 5 pennies a week; 1 for savings, 1 for church or charity which was put in his Sunday school envelope, and 3 for spending. This amount was increased gradually as the child aged and his needs became greater. At 6 he received 10 cents weekly, and from then on, no matter what the allowance, he was urged to give at least 10 per cent to savings and 10 per cent to charity. Of course he was not limited to 10 per cent for savings or charity if he could give more, but that was the minimum.

The following is a schedule of actual allowances used:

Age	Weekly allowance	Spend	Save	Give	Yearly allowance
5	\$.05	\$.03	\$.01	\$.01	\$2.60
6	.10	.06	.02	.02	5.20
7	.20	.12	.04	.04	10.40
8	.50	.30	.10	.10	26.00
9	.60	.36	.12	.12	31.20
10	.75	.45	.15	.15	39.00
11	1.25	.75	.25	.25	65.00
12	1.65	.99	.33	.33	85.80
	Monthly allowance				
14	14.00	11.20	1.40	1.40	168.00
15	15.00	12.00	1.50	1.50	180.00
16	16.00	12.80	1.60	1.60	192.00
17	17.00	13.60	1.70	1.70	204.00

Each child's responsibility for spending was increased as the allowance was increased. At first he paid for all his gifts; then for his car-



fare, school supplies, school lunches, dues to Camp Fire Girls and Boy Scouts; then for shoes, stockings, and recreation; and, at high school age, for all clothing and other expenses except board and room, doctor and dental bills and music lessons. Each child plays some musical instrument. He has had at least two years on the piano before taking up a special instrument. The girls have had fancy dancing of some sort and the older children—both girls and boys—have had ballroom dancing. The four older children have camped with the Boy Scouts or Camp Fire Girls, and the two older girls have attended their church conferences three years in succession.

The recreational program has been varied. In the earlier years it was entirely centered in the home, the church, and school. There have been many guests in the home. Each child has a birthday party each year, and usually there are parties on St. Valentine's day, Halloween, and other special holidays. Each child frequently has guests for meals and occasionally has overnight guests. Sometimes the guests are suggested by the child and at other times by the parents. All entertaining, whether for the child or the parents, is most informal, but as nicely done as possible, so that all the children may learn how to entertain and enjoy company. Each is made to feel that the home is his and that he may have guests whenever it fits in with the family plans.

There have been family trips, picnics, and drives taken at all times of the year. Most of the trips have been in Washington, Oregon, California, and near-by Canada. The parents have been in many parts of the United States and Canada. Each summer a plan is made for week-end trips, so that the family may see some part of the state new to all. This has made it possible to visit the ocean several times, most of the near-by lakes and mountains, and places of particular interest. The trips have been mostly by auto and boat, although occasionally by train. The local picnics are planned to take in all parks and beaches around Seattle each year. In the earlier years the entire summer was spent in a cottage on the Sound, but of later years, various trips, together with a week or two or perhaps a month in camp, fill the vacation period. The home on Lake Washington takes the place of the camp at times and affords boating and swimming.

The family, which is very fond of music and the theater, seldom attends movies. The members like ice-skating, tennis, football, baseball, and various indoor games at home.

The children attend Sunday School, church, and church entertainments regularly, and participate in all school affairs and activities.

The children have been happiest when joining in the family recreation. Not until the later high school years have they been away from the family very often except when attending their little parties.

Had the family not participated so generously in the sharing of the household responsibilities, it would have been necessary to overburden the mother or to hire outside help. Such arrangements would have spoiled the training and *esprit de corps* of the family and would have greatly increased the expenses and allowed less money for recreation

and other opportunities. The children have shared in the activities and responsibilities of the household about as fully as they could and still have sufficient time for self, school, church, club, practice time for music, and recreational activities.

The family has striven for the upbuilding of a strong physical, intellectual, moral, and cultural background; for a love of nature and mankind; and for a religious understanding and attitude at all times. Service to the community and country has held its place.

It is impossible yet to suggest changes. So far, each problem has been faced as it arose. The family is strong physically and mentally, and, best of all, happy.

### PAID HOUSEHOLD SERVICE <sup>25</sup>

Although only a small portion of the 30,000,000 homes in the country employ paid household service, the actual number of homes involved is very large. In these homes the effect of the employment of a paid worker must be taken into consideration in planning the house and its facilities. Even when part-time service only is used, the arrangements for the work of the home will be different from those of the home where all of the work is done by members of the family.

### Trends in Household Employment

An examination of all available data shows that the size and composition of the group engaged in household employment have changed greatly in the last 50 years. There has been a decrease in number, an increase in age level, an increase in the number of married women engaging in the occupation, a decrease in the proportion of foreign-born, and a marked increase in the proportion of Negroes engaging in it. During this same period there has been a decrease in the number of full-time workers employed per household.

The decrease in the number of persons engaging in household employment is due in part to decreased immigration and to increased occupational opportunity for women, though probably the fact that it is an occupation considered "socially undesirable" has been a more important factor. The decrease in the number of resident workers employed per household is probably due, to a large extent, to the concentration of population in large cities and the development of small and easily cared-for apartments, the high

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<sup>25</sup> Prepared by B. Eleanor Johnson, Research Assistant, President's Conference on Home Building and Home Ownership.

cost of paid service, the increase of labor-saving devices for the home, and the development of large-scale substitutes for household production. It doubtless has been accompanied by an increase in the number of part-time workers employed though the data available to show the extent to which the part-time worker is employed in private households are scattered and unsatisfactory.

It is impossible to secure an accurate figure as to the number of private households in the United States having full-time household employees from available data, since no distinction is made between those employed in public and private households in the data as given in Census Reports, and since only limited data are available as to the average number of workers per employing family. Recent research indicates that, at the present time, probably only 2 or even 1 per cent of the private households in the country have full-time employees rather than 5 per cent, an estimate frequently given.<sup>26</sup>

Whether a full-time worker, a regular part-time worker, or an occasional worker is employed is largely determined by the cost of the service. A very large proportion of the households employing full-time resident workers have incomes sufficient to permit the "well-to-do" and "liberal" standards of living. Of 233 employers of full-time workers included in a recent study of household employment in Chicago, about 97 per cent had annual incomes of \$5,000 and over. Almost two-thirds had incomes of \$10,000 and over.<sup>27</sup> Peixotto's study of the expenditures of 96 married faculty members of the University of California shows that no family with a total expenditure below \$6,000 had a full-time resident servant. The majority of household employees were found in families where the income was above \$8,000.<sup>28</sup> In the study of expenditures of 272 members of the faculty of Yale University, it was found that, in families with no children, one regular servant was possible when the income was \$6,000 a year; but for families with children, this was only possible when the income was \$7,000 a year.<sup>29</sup>

The number of household workers employed per household has a tendency to increase with increased income. The Chicago study

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<sup>26</sup> Johnson, B. E. *Household employment in Chicago*. (Unpublished Doctor's Thesis, University of Chicago, p. 66-71.)

<sup>27</sup> *Ibid.* p. 72.

<sup>28</sup> Peixotto, J. B. *Getting and spending at the professional standard of living*. New York, Macmillan Co., 1927, p. 177.

<sup>29</sup> Henderson, Y., and Davie, M. R. *Incomes and living costs of a university faculty*. New Haven, Yale Univ. Press, 1928, p. 7-13.



showed that as the income increased from less than \$5,000 a year to \$10,000 a year and over, full-time employees increased from an average of 1.0 to 1.8, and part-time from 0.1 to 1.3 per family. Only in families having incomes of \$10,000 and over were two or more full-time workers employed.<sup>30</sup> The findings of the Yale study showed that it was possible for a family with an income of \$10,000 or more to have one full-time employee and some part-time service as well, if the family owned its own home.<sup>31</sup> Results of the Chicago study show that families living in homes having 20 or more rooms employed an average of 6 household workers, both full-time and part-time, whereas those living in homes having less than 10 rooms employed an average of 2 workers.<sup>32</sup>

### Effect on the Housing Problem

The preceding analysis shows that provision for the housing of resident household employees will vary in different sections of the country but will be confined largely to the homes of families with incomes of \$5,000 or over; that is, to homes costing approximately \$10,000 or more, if twice the annual income is used as a basis for estimating the value of the home which a given income may safely provide.

Since so large a proportion of the employers of full-time household service with incomes of from \$5,000 to \$10,000 employ only one resident worker, many homes costing from \$10,000 to \$20,000 will require provision for the housing of only one worker. It is primarily in homes for families with incomes of \$10,000 and over—homes costing \$20,000 or more—that provision for the housing of two or more resident workers is necessary; and in many of these homes, this will include provision for the housing of both men and women. Besides providing for adequate bathroom facilities and sufficient bedrooms to insure privacy to the worker, it is particularly desirable that the housing of resident workers include provision for a special room for the entertainment of their friends.

It has been estimated that only 2 per cent of the total number gainfully employed have incomes of \$5,000 and over.<sup>33</sup> It has also been estimated that 97 per cent of all married men have incomes

<sup>30</sup> Johnson, *op. cit.*, p. 93.

<sup>31</sup> Henderson and Davie, *op. cit.*, p. 113.

<sup>32</sup> Johnson, *op. cit.*, p. 101.

<sup>33</sup> National Bureau of Economic Research. *Income in the United States; its amount and distribution, 1909-1919*. New York, Harcourt, Brace & Co., 1921, 1:140.



of \$5,000 and less,<sup>34</sup> and that in all probability a majority of them have incomes of \$2,500 and less. According to these estimates a very large proportion of the families in this country will be housed in homes valued at \$5,000 or less. Few families with incomes of less than \$5,000 have full-time household workers. The majority have either no household assistance at all or part-time assistance which may vary from a specified number of hours a day to occasional, incidental service.

Since the part-time worker is so generally employed in households having incomes above as well as below \$5,000, and since trends apparently indicate that this type of service is undoubtedly increasing, it is desirable to make special provision for the part-time worker in the majority of homes costing \$5,000 and over. This will include providing a place in which to hang wraps and to change from street to work clothes, and a place other than the kitchen sink for washing the hands. Provision for a shower and toilet for the use of the part-time worker is also desirable.

Since so large a proportion of the families in this country have either no paid household service or the assistance of only one part-time or full-time worker, it is particularly important to plan homes with special emphasis on arrangement that will facilitate efficient housekeeping, on choice of surfaces that are easily cared for and on choice and arrangement of equipment for the efficient performance of work to be done.

The difficulty of securing desirable household workers is frequently cited as one of the causes of the trend toward apartment house living. A housing program that includes consideration of the needs of both part-time and full-time resident and nonresident household workers, together with a program to correct other conditions which at the present time make household employment seem less desirable than industrial employment to many girls and women, may go far toward correcting the difficulty.

### SUBSTITUTE SERVICES <sup>35</sup>

Substitute services are defined as those activities from outside the home which may replace tasks hitherto considered the inescapable duty or obligation of the homemaker. They cover the fields

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<sup>34</sup> Kyrk, H. *Economic problems of the home*. Ch. VIII, p. 4. (Unpublished manuscript.)

<sup>35</sup> Prepared by Ethel Puffer Howes, Director, Institute for the Coordination of Women's Interests, Smith College, Northampton, Massachusetts.

of child care, with particular reference to the nursery school, and of the preparation of food, with particular reference to hot cooked food delivered in the home. Also, the outside laundering of clothes, the provision from the outside of services of housework, of cleaning, and of household management are substitute services. They may be of the commercial type, such as the commercial laundry or cooked-food shop; or of a voluntary nonprofit-making or entirely cooperative character, such as the nonprofit central kitchen, or cooperative nursery operated by parents alone. Conceivably, cooperative community enterprises may provide for services that are still largely performed in individual homes. Developments of community units, as in the garden cities abroad and similar projects in Radburn, New Jersey, and Sunnyside, Long Island, and cooperative housing projects, such as those of The Amalgamated Clothing Workers in New York, present favorable opportunities for such enterprises.

The reason or motive for developing these activities in a given locality, whether the need for assistance of the employed mother or the opportunity for improved social or educational conditions or for increased leisure, is not here a question. Our object is merely to give a brief survey of the typical forms of substitute service, with emphasis on those of especial present promise, and suggestions for needed research. The particular relation of this topic to the general topic of home building and home owning lies in the opportunity given by such substitute services, through decrease in the operating plant, to modify home construction toward increased space for distinctively personal and social family use.

In general, the reference is to the average family of moderate means, to which even modest economies are important, but which is yet entirely self-supporting. For example, the typical day nursery of semi-philanthropic or "relief" type, while affording obvious "substitute services," would fall outside the scope of this survey.

### Child Care

The outstanding type of substitute service in this field is the so-called nursery school, which provides daily (or five days weekly) care, by professionally trained persons, for the child of from two to five years (with outside limits of fifteen months to six years), either for three morning hours or for a five to seven-hour period, with provision for habit training, outdoor play, meals, and rest

periods.<sup>36</sup> The typical nursery school is operated in connection with a larger educational institution—a college or university—or, increasingly, a junior college or private school for girls, serving the additional function of educational laboratory for these institutions.<sup>37</sup> There are, however, many independent private, and a few independent cooperative, nursery schools.<sup>38</sup> The number of these schools of all types noted is exceedingly small in relation to population. The Office of Education of the United States Department of the Interior listed in 1930 two hundred twenty-six, with an average of fifteen to twenty pupils each; Dr. John E. Anderson estimates six million children in the United States under six years. Moreover, the fees of the existing types, both the institutional and the private schools, are with few exceptions beyond the means of the modest-income family. Thus, the present incidence of the nursery school may be said to be without appreciable effect, considered as a substitute service; i. e., disregarding its general influence on education.

There exist, however, certain voluntary associations of parents for conducting nursery groups or play-schools, either under the direction or general supervision of a trained person, or fully cooperative without such direction. No study has been made either of the actually existing groups of this type, or of the possibilities for their extension. They are largely unrecorded.<sup>39</sup> The present leaders of nursery school education have been very conservative in their attitude toward the increase of these organizations. The fear has been expressed in many quarters that what are regarded as the minimum essentials of nursery schools might be neglected or slighted, with dangerous results, by groups without professional direction.<sup>40</sup> Nevertheless, it appears that in view of the present

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<sup>36</sup> Merrill-Palmer School of Homemaking, Detroit, Mich. *Annual Reports*.

<sup>37</sup> Howes, E. P., and Beach, D. *The cooperative nursery school: An experimental demonstration of the Institute for the Coordination of Women's Interests*. Northampton, Mass., Smith College, 1928. (Inst. Coord. Women's Interests, Pub. 3.)

<sup>38</sup> Cambridge Nursery School, Cambridge, Mass. *Annual reports*.

<sup>39</sup> Institute for the Coordination of Women's Interests. *The nursery school as a social experiment*. Northampton, Mass., Smith College, 1928. (Pub. 4.) Addresses by leaders of cooperative nursery schools.

Taylor, K. W. *The children's community*, Berkeley, Calif. Washington, D. C., American Association of University Women.

<sup>40</sup> National Council of Parent Education. *Minimum essentials for nursery school education*. As accepted by the National Committee on Nursery Schools, October, 1929.



very widely extended instruction in child care, both psychological and physical, it is essentially reasonable to encourage mothers to practice in mutual aid and cooperation what they are urged to do singly in the home. It would seem that constructive plans looking toward the extension of such cooperative nursery groups, under direct or at least regional trained supervision, would constitute an important forward step in this field.

### Household Management

Substitute service for household management obviously takes the form of club, colony, camp, or comprehensively, of cooperative management, whether of an entire housing project of which household management is a part, or of a limited project. The club or camp with central restaurant and recreation rooms, and surrounding dormitory cottages for individual families, is becoming increasingly popular, and is becoming progressively adapted to moderate incomes. The cooperative apartment furnishes, besides the housing, the service of the nursery, nursery school, cleaning, and laundry, supervised general recreational services, and supervised play for children.

A few religious colonies of the communistic type, such as that of Amana, in Iowa, which is unusually well documented, offer interesting varieties of cooperative substitute household services, especially food service.<sup>41</sup> There are examples of apartment houses for the high-income range in large cities, which furnish complete services in the way of delivered meals, and maid and cleaning services of all kinds, with modern additions in the way of nursery groups, recreational service, etc. Probably the Amalgamated Cooperative Apartments with their nursery school and other services, and the Finnish Cooperative Apartments with their cooperative restaurant, in New York and Brooklyn, respectively, are the best known examples within the moderate-income range.

Extremely interesting variations of the colony or club type for moderate incomes occur in the English garden cities of Letchworth and Welwyn. Homesgarth, at Letchworth, has an original plan of an open quadrangle composed of thirty-two flats and cottages with dining room, kitchen and service quarters grouped at one side, operated on a cooperative housekeeping basis; central heating, food,

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<sup>41</sup> Shambaugh, B. M. H. *Amana: The community of true inspiration*. Iowa City, State Historical Society of Iowa, 1908.



housecleaning, and all upkeep included. The same type is exemplified at Guessens Court, Welwyn. Meadow Way Green, Letchworth, offers a central dinner service, wholly cooperative, and other cooperative features of upkeep. Sunnyside, Long Island near New York City, and Radburn, New Jersey, offer examples of the addition to a colony of individual homes planned as a homogenous group, of cooperative service features of nursery education and children's recreation, which are still developing.<sup>42</sup>

### Food Preparation

The enormous use by American households of commercially prepared foods constitutes a substitute service which must take a leading place in any survey; but its extent is obvious, its justification admitted, and its nutritional conditions, with the increased knowledge as to conservation of vitamins, etc., constantly improving. The scope of this discussion obviously is limited rather to the unit operating service which may replace, or nearly so, the entire household task of preparation. Thus the public kitchen, cooperative restaurant, cooked-food shop, etc., while valuable and interesting for study, present only a partial substitute service. The complete service would seem to be that of the delivery of hot cooked food to the home, at a price to make it generally available.

The record of hot cooked food supply projects in America has shown their all but invariable ill success, or at least discontinuance. Yet long-continued success has been recorded for many similar European services, notably in the cities of Amsterdam, Utrecht, The Hague, Stockholm, and Copenhagen. Studies of the American undertakings have disclosed that the probable cause of their difficulties lies in the disregard of transportation costs, neglect of the assurance of clients by a subscription method, costly or inefficient containers, poor packing, and undue complication of menu.<sup>43</sup> An experimental project based on this analysis, and following certain characteristics of the European projects, notably as to simplicity of menu, met with unexpected success in an academic com-

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<sup>42</sup> Amalgamated Cooperative Housing Association, New York. *Annual reports*.

City Housing Corporation, New York. *Reports*.

Cooperative Trading Association, New York. *Reports*.

<sup>43</sup> Norton, A. P. *Cooked food supply experiments in America*. Northampton, Mass., Smith College, 1927. (Inst. Coord. Women's Interests, Pub. 2.)

munity. The methods of this project have been published in the form of a handbook for cooperative or community use.<sup>44</sup> While the particular project was developed for the needs of a specific type of family (the mother professionally occupied), it is believed that an unusual opportunity is here offered for extension of the delivered hot cooked food project at a price to make it available to families of which all members are employed. The possibility of a balanced ration thus developed would seem to be worth extended experiment, on the part, for instance, of life insurance or welfare organizations. It should be here noted that the provision of the main meal of the day is alone in question.

### Cleaning <sup>45</sup>

Cleaning and supply services by commercial firms have as yet been confined to large cities, and to the higher-income ranges. Cooperation of housewives for mutual aid and substitution in housework, or for the provision of visiting service, has been slow to develop. Probably the best examples occur in connection with the activities of the state and county home demonstration agents—the canning or “sewing bee,” the “spelling bee,” child care, and the neighborhood market, may illustrate the type. Some informal studies have been made, but the subject awaits thorough-going investigation from the point of view of cooperation, rather than that of home economics extension.<sup>46</sup>

### Laundering

The extent to which the commercial laundry is utilized in communities of different size, as brought out in the Bureau of Home Economics study, is presented in the following section on “Home Production.” (See p. 58.)

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<sup>44</sup> Howes, E. P., and Beach, D. *Cooked food supply experiments in an Eastern college community*. Northampton, Mass., Smith College, 1928. (Inst. Coord. Women's Interests, Pub. 6.)

Howes, E. P., and Sanborn, D. M. *The dinner kitchen cook book, and report for 1928-29 of the Smith College community kitchen*. Northampton, Mass., Smith College, 1928. (Inst. Coord. Women's Interests, Pub. 9. Revised and final report covering Pub. 2 and 6.)

<sup>45</sup> Stocks, E. H. *A community home assistants' experiment*. Northampton, Mass., Smith College, 1928. (Inst. Coord. Women's Interests, Pub. 5.)

<sup>46</sup> Howes, E. P., and Richardson, M. R. “A series of articles on cooperative home service.” *Woman's Home Companion* beginning February, 1923, with article “We Women.”

### Preliminary Research Problems

In general, the development of substitute services in this country lags far behind that of Europe. This is true particularly of cooperative laundry and cooperative food-supply services. A comprehensive study would have to begin by investigating the forms which cooperative projects (which of course belong primarily to the moderate-income class) have taken in Europe, in the field of housing and in all household services of food preparation, laundering, and general upkeep, together with educational and recreational facilities. Such a preliminary study<sup>47</sup> is in process of completion and will soon be available.

### Effect of Utilizing Substitute Services

Substitute services have a positive relation to house planning and home building in the opportunity they afford for a type of dwelling in which the home as a manufacturing plant is subordinated to the home as a social, aesthetic, and cultural center. Along with the economies of the smaller quarters which substitute services make possible, may go the very distinct advantages of a way of life which allows more personal attention to family problems and family intercourse. A woman's magazine received some two thousand letters answering the question, "What would help you most in your home life?" An overwhelming number of those women answered, "Anything that would give me more time for my children, and time to be a little more myself."

Substitute services allow a relative independence of locality and of type of dwelling. For instance, where child care in open-air groups can be facilitated and "regularized," the fear of the city, of special neighborhoods, or of narrow quarters may disappear. Incidentally, this is the reason for the dictum of a certain famous child specialist, that the city is the place for young children. He was referring to the well-to-do, but these characteristics of planned living, open-air play, etc., need not be limited to the well-to-do, as many settlement nurseries can attest. Multiple housing is inseparable from city life; then let parents in the moderate-income range combine to eradicate its worst features.

Less work space, less storage space, less overhead on unused

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<sup>47</sup> Wood, E. E. *Community aids to homemaking in seven European countries*. (Ms. report for Inst. Coord. Women's Interests. To be published.)



tools, less plant investment, and more open space are the housing corollaries of substitute services.

### HOME PRODUCTION <sup>48</sup>

The statement that industry has left the home is now so common as to be a platitude. However, the extent of the change, the present practice of production in the home for home consumption, whether or not these should be further shifted from the home to outside agencies, whether certain production processes might not well be returned to the home—these questions, with all their tentacles of social and economic implication, present a complex picture. It is not the purpose of this report to review the events which have brought about these changes, but to present some of the available material, incomplete and fragmentary though it is, to show present practices, in the hope of stimulating further study of the situation.

#### Production Processes for Home Consumption

One confronted with the question of what production actually goes on in the modern home is immediately faced with the necessity of differentiating between urban and rural homes and between homes at different consumption levels, from the lowest to the highest. Neither the goods and services demanded within these groups nor the method of fulfilling the family needs are comparable. Thus will be found those homes producing a large percentage of the goods used, through every gradation to those purchasing all goods and services outside the home. Likewise will be found those people who favor complete production within the home (or nearly so), and those equally interested in removing from the home all or as much production as is possible. The choice involved is one of values based upon standard of living, amount of income, training, interest, and abilities of the homemaker. The fact that over four-fifths of the persons gainfully employed in the United States in 1918 received \$2,000 or less and that two-thirds fell in the \$500 to \$1,500 group, makes the amount of the income available an important factor.<sup>49</sup> Thus, families

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<sup>48</sup> Prepared by Paulena Nickell, Department of Home Economics, University of Illinois, Urbana, Illinois.

<sup>49</sup> National Bureau of Economic Research. *Income in the United States; its amount and distribution, 1909-1919*. New York, Harcourt, Brace & Co., 1921.



with a budget of \$2,000 or less will consider carefully the amount of goods and services they can afford to purchase already prepared. Whether or not in a modern society a family purchases a meal prepared and delivered to its door, or whether it will prepare the meal from raw material to completed product, will depend somewhat upon the comparative cost, in time and money.

Because the home has been considered a private enterprise, it is only within recent years that there has been any scientific investigation of its activities. Information on present practices is therefore very meager. That available is not general enough in character to use as a basis for recommendations. Furthermore, conditions change so rapidly that information collected on this subject is quickly out of date. The experimentation, for example, in production of meals to be delivered at the door has been with rather selected groups and under special conditions such as the experiment in large-scale food preparation carried out by the Institute for Coordination of Women's Interests at Smith College.<sup>50, 51, 52</sup>

Valuable information as to the extent of home production has recently been secured in the time studies of the Bureau of Home Economics of the United States Department of Agriculture and of various State Experiment Stations mentioned previously. (See "Time Spent in Homemaking Tasks," p. 26.

Another study of the Bureau of Home Economics, covering 228 mountain homes in the Appalachian Highlands of Kentucky, in the year 1929-30, shows an interesting retention of certain household industries now little found in most communities.<sup>53</sup> Forty-eight per cent of these families do their own shoe repairing, 67 per cent make quilts, 76 per cent make soap, and 21 per cent make brooms. Only 19 of these families, however, still use the spinning wheel, and only 3 do weaving. Churning, canning, pickling, drying fruits and vegetables, and butchering are still carried on by almost every household, and many other methods of food preservation are common.

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<sup>50</sup> Norton, *op. cit.*

<sup>51</sup> Howes and Beach, *op. cit.*

<sup>52</sup> Howes and Sanborn, *op. cit.*

<sup>53</sup> Data supplied by Faith M. Williams, Economics Division, Bureau of Home Economics, United States Department of Agriculture.

## Preparation and Service of Food in the Home

**Extent of food preparation in the home.** There are few data available on the amount of food production in the home, defining food production as conversion of raw or partially prepared products into finished form for home consumption. The report of the Bureau of Home Economics mentioned above shows that food production for home use is the rule in 228 homes visited in the Kentucky Highlands. Ninety-six per cent of the families visited in this investigation made their own butter, 99 per cent canned fruits, 89 per cent canned vegetables, 85 per cent butchered hogs. This, however, is a group where household industries linger to an unusual extent and can not be taken as representative of the modern home. The best indication of the extent of food preparation in homes of various types throughout the country, therefore, is furnished by the time records made by rural and urban families for the Bureau of Home Economics and for various State Experiment Stations. These data give the amount of time spent in food preparation, along with all other household operations, and the relation of time spent to amount of help, age of children, number in family, and other factors.

The extent to which the baking of bread in homes of different types is being superseded by the commercial bakery is indicated by the Bureau of Home Economics time studies.<sup>54</sup> Of the farm households studied, only 37.4 per cent baked any bread at home. The percentage showed a consistent decline as the size of community increased, falling from 28.6 per cent of other country households and 23.4 per cent of village households to 8 per cent of households in smaller cities and 6.5 per cent of those in cities of 250,000 population and over.

**Money cost of food prepared in the home.** The Massachusetts Bureau of Labor Statistics study in 1901 is the most complete publication on money costs of home-cooked versus purchased food.<sup>55</sup> Although prices and practices have changed greatly since this study was made, it is suggestive as to methodology of investigation in this field. The experimentation with

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<sup>54</sup> Data supplied by Bureau of Home Economics, United States Department of Agriculture.

<sup>55</sup> Commonwealth of Massachusetts, Bureau of Labor Statistics. *The relative cost of home cooked and purchased food*. Labor Bul., 19, Aug., 1901, p. 67-98.

community and cooperative kitchens has been most challenging in its release of time for the homemaker, also making for greater efficiency through large-scale methods of production. However, the published results do not give a cost analysis of large-scale production versus home-prepared meals which will lead to any general recommendations for the mass of people. It may be possible to reduce the cost of this type of service through improved management and organization, but, to date, this element places the extensive purchase of meals out of range of the groups having incomes of \$2,000 or less.

### Production of Clothing in the Home

**Extent of clothing construction in the home.** A report of the Bureau of Home Economics on "Present Trends in Home Sewing"<sup>56</sup> presents the most detailed treatment available of the clothing construction problem in rural and in urban homes. The following information is cited from the conclusions of this study:

"A large percentage of the 1,981 women reached by this survey were still making many garments for women and children. More than two-thirds of the women stated that they were making nine or more of the kinds of garments for men, women, and children listed in this survey. More of those living in the smaller communities than of those living in the larger communities made these garments. A larger percentage of those having a low income than of those having larger incomes made the garments named; however, the highest percentages appeared in the majority of cases in the \$2,000 to \$2,999 income group.

"The more persons there were in the families studied, the more different kinds of garments were being made in the home.

"The reasons given for buying ready-made garments were to save time and energy, to get better style and design, and to get greater satisfaction, while the principal reason given for making garments at home was to lower the cost. Another reason given for sewing at home by a large number was to get materials of better quality.

"As long as the woman at home has no direct source of income and her chief duty is in caring for the home and its occupants, she will, no doubt, consider that making at least a part of the clothing for the family is a wise way of 'stretching' the family income."

**Money cost of clothing made in the home.** The cost of making clothing in the home *versus* the purchase of clothing ready-made has been the subject of much controversy, but there has been

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<sup>56</sup> O'Brien, R., and Campbell, M. *Present trends in home sewing*. United States Dept. Agri. Misc. Pub. 4, 1927, p. 14-15.



little comparative study. Williams and Eppel report such a study of infants' garments with the following conclusions:

"It is not economical to make all garments in the layette at home. Homemakers who make part of their layette will find it most profitable to make wool kimonos and wool sacques, and nainsook gertrudes.

"If the homemaker considers a 'wage' of thirteen to seventeen cents an hour satisfactory, she might profitably make dresses, outing flannel kimonos, night gowns, and outing flannel sacques. . . .

"In general, the garments in the layette in which design and material are most standardized are also the cheapest to purchase ready-made and the ones least profitable to make at home."<sup>87</sup>

The results of an effort on the part of the home economics extension service of the University of Illinois to compare the cost of ready-made and home-made garments on the basis of quality of material, technique, finish, etc., are shown in the following data:

"In a county annual meeting where 312 dresses were entered in a contest, the following figures were noted: Cost of materials varied from 48 to 95 cents. Time spent in construction varied from 50 minutes to 6 hours for afternoon dresses. Earnings per hour varied from 10 to 75 cents."<sup>88</sup>

In another instance a cost study was made of dresses made by local leaders in home bureaus by subtracting the total cost of the home-made garment from the cost of a ready-made garment of similar quality of material and workmanship and calculating the amount earned per hour from the total "profit."

The earnings per hour on 12 morning dresses ranged from 10 to 88 cents and on 10 informal afternoon dresses from 26 cents to \$1.23. From these figures it would seem that:

1. "It pays to make either morning or afternoon dresses of the better grade. The lower the price of the ready-made garment being copied, the narrower becomes the profit of the home sewer and therefore the smaller her earnings per hour.

2. "Skill counts in this, as in other home activities. The one woman who reported never having made a dress before, spent more time than the majority of women reported (in proportion to the cost of materials and the value of the finished product) and therefore earned less per hour than the average.

3. "Freedom from interruptions is important if the earnings per hour

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<sup>87</sup> Williams, A. B. T., and Eppel, A. I. "Home-made and ready-made garments for infants." *Jour. Home Econ.*, 21: 183-185, 1929.

<sup>88</sup> Ward, G. J. Material prepared for Illinois Agricultural Adjustment Conference, Nov., 1931.



are to be raised. The highest figure (\$1.23 per hour) was reported by a woman who permitted nothing to interrupt her."

In a study of the annual clothing expenditures of 1,425 farm families made by the Bureau of Home Economics reports from 485 farm families in five states show the number and cost of new garments purchased ready to wear, the number of garments made at home, and the cost of materials used for home-made garments.<sup>59</sup>

"These figures taken give no indication of the relative quality of material, or of the cut and fit of the home-made as compared with the ready-to-wear garments, or of the time consumed by the women who made clothes for themselves and their children. It is possible, however, from the figures available to compare the average money cost to the family of home-made and factory-made clothes of different types. In general, as might be expected, the money cost of the home-made garments was much less than those purchased ready to wear. In some few cases, however, the average cost of materials for garments made at home was greater than the average cost of purchased garments of the same kind for women and for girls of a given age. In these instances, it seemed clear that the persons who had made the garments at home had secured clothes of quite different material from that utilized in the garments of the same type purchased ready to wear. Silk dresses made at home averaged in money cost a little more than half the average price paid for silk dresses factory made. Garments for which the average cost of materials was 45 to 75 per cent of the average price paid for the same kind of articles purchased ready to wear are as follows: aprons, cotton, wool, and silk dresses, blouses, outer bloomers and knickers, brassieres and underwaists, chemises and combinations, and kimonos. The average cost of materials for cotton and wool skirts, nightgowns, and pajamas, and under-bloomers was from 75 to 90 per cent of the average prices for ready-made articles of the same kind.

"In planning the family clothing budget it seems obvious from these comparisons that it is worth while considering the sewing abilities of the women and girls of the family, and the amount of their time available for sewing, before deciding whether to purchase ready to wear or whether to make at home a certain proportion of the new garments needed."<sup>60</sup>

### Laundering in the Home

Laundering still remains a major homemaking task in a very large number of American households, but it takes prominent rank

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<sup>59</sup> Williams, F. M. *Clothing costs among 1,425 farm families reported in survey.* (Yearbook of Agriculture, 1931. U. S. Dept. Agri., 1931, p. 146-149.)

<sup>60</sup> *Ibid.*

among homemaking activities which have shifted to a considerable extent to outside agencies. Where good commercial laundries are established and reasonable prices are charged, there is a tendency to send out a part or all of the laundry. The extent to which the homemakers included in the Bureau of Home Economics time study used this method of reducing time and labor is shown in the following figures:<sup>61</sup>

Group of homemakers	Percentage using:			
	No outside laundry service	Commercial laundry	Laundress outside of the home	Both facilities
Farm homemakers.....	87.4	9.1	3.3	0.2
Other country homemakers...	77.4	18.1	4.5	.....
Village homemakers.....	84.8	10.7	4.5	.....
Homemakers in cities of 50,000 to 250,000 population.....	33.3	56.5	6.2	4.0
Homemakers in cities of 250,000 population or more....	31.5	59.5	5.4	3.6

These figures suggest that almost two-thirds of the moderately well-to-do homemakers in the city use the commercial laundry. That rural homemakers are not making the same use of the commercial laundry may be due to such factors as tradition, cost, and distance to commercial laundries offering satisfactory service, or to the failure of such laundries to cultivate a rural clientele.

When all or a portion of the laundry is sent to a commercial laundry, questions as to service utilized, whether wet-wash, rough-dry, flat-ironed or complete finishing, must be solved. Investigations in regard to loss, costs, wear and tear, and other factors are needed. Problems to be considered include evaluating of saving through reducing need of home laundry equipment, and possible gains through good bleaching and good sterilization. Other needs must be judged in view of saving of the homemaker's time and effort. Homes and commercial laundries might well unite their efforts in the investigation.

<sup>61</sup> From data supplied by Bureau of Home Economics, U. S. Dept. of Agriculture.

## CHAPTER IV

### PURCHASING PROCEDURES

The purchasing procedures of a family have a direct bearing upon its choice of a home. Not only do they determine how much money is available for housing, but they influence the type and design of the house which is satisfactory to that particular family. The first and perhaps the most perplexing problem in the majority of families is how to finance their purchases.

An economic question which is also of great importance to the individual household and to the retail distributor concerns the quantities of particular articles to be purchased at one time. Decisions in this matter are important not only because of the costs involved, but also because of their effect upon storage space in the home. A third problem is that of selecting from the retail market the article suited to the pocketbook of the family and to the particular need to be satisfied. This requires deciding not only between different classes of commodities but also between different items in the same class.

#### INSTALMENT BUYING AS A PURCHASING METHOD <sup>1</sup>

Purchases made on charge accounts or on the instalment plan are as important, if not more so, in the economy of many families, as purchases made with cash payments. As popularly used, the term "instalment buying" has reference to consumers' goods purchased from the retail dealer. It has been defined as "the purchase and delivery of an article for which the price is to be paid in fixed portions, at stated intervals, and usually with a payment of part of the purchase price at the time of taking possession of the goods." <sup>2</sup>

The minimum amount of a sale on which instalment credit is allowed is set sufficiently high to bear the extra expense involved in handling the account. The amount of the first payment varies with the article: Ten per cent or less is frequent in sales of house-

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<sup>1</sup> Prepared by B. Eleanor Johnson, Research Assistant, President's Conference on Home Building and Home Ownership.

<sup>2</sup> U. S. Dept. of Labor, Bureau of Labor Statistics. "Standard of living of employees of Ford Motor Co. in Detroit." *Mo. Labor Rev.*, 30 (6): 1209-1252, 1930, p. 1249.



hold utilities; 20 per cent in sales of furniture and other types of house furnishings; and as high as 50 per cent in furs, jewelry, apparel, and other goods that depreciate rapidly in value.<sup>3</sup>

The cost to the consumer is necessarily greater than if she were able to buy for cash, for, in addition to the regular cost, instalment sales must bear such increased cost as the interest on the amounts involved, expenses of collection, and insurance against loss.

Many users of instalment credit, however, probably do not know the difference between the cash and the instalment price of the articles they purchase, and if told they probably would be unable to work out correctly the rate of interest represented. The finance charges often are excessive because practices are not yet stabilized and the real charge frequently is disguised by quoting it as an interest payment on the unpaid balance.

Seligman cites cases in which a quoted rate of 9 per cent, in one instance, represented an actual charge of 38 per cent; in another instance, a quoted rate of 20 per cent for an average of five months represented an actual charge of 48 per cent; while in a third case, the actual charge was 84.5 per cent.<sup>4</sup>

From the standpoint of the consumer, the growth of instalment credit is primarily due to the fact that it provides a means of satisfying quickly, the demands for a higher standard of living, since it makes possible the acquiring of a commodity, the outlay for which is too large to be met out of accumulated savings or immediate current income, as is the case with many articles of household equipment.

Many advantages as well as many disadvantages have been claimed for instalment buying as a purchasing method. Nystrom lists 8 consumer advantages and 12 disadvantages.<sup>5</sup>

The principal disadvantages claimed for instalment buying as a purchasing method are: (1) The cost of the service; (2) that it frequently results in the seeking of consumer satisfaction beyond economic means since it provides an easy method of purchase.

The practices of retailers selling on the instalment plan are becoming stabilized and financing costs are lower than they were at

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<sup>3</sup> Nystrom, P. H. *Economics of retailing*. New York, Ronald Press, 1930, 2:609-610.

<sup>4</sup> Seligman, E. R. *The economics of instalment selling*. New York, Harper & Bros., 1927, 1:287-290.

<sup>5</sup> Nystrom, *op. cit.*, p. 604-608.



earlier periods. If this continues, it is probable that the disadvantages of "the cost of the service" will tend more and more to be counterbalanced by the advantages of the method. At present no data are available to show the extent to which instalment buying is responsible for expenditure beyond economic means. The Bureau of Labor Statistics study, "Cost of Living of Federal Employees in Five Cities," showed that families reporting instalment payments had a slightly greater average deficit than those making no instalment payments during the year.<sup>6</sup> But how far this can be attributed to instalment buying cannot be determined. However, the purchaser whose future earnings are uncertain should guard against the use of this purchasing plan.

## AMOUNTS OF HOUSEHOLD PURCHASES<sup>7</sup>

### Social and Economic Trends Influencing Family Purchasing Procedures

The quantity of household materials purchased at any one time must be considered in relation to the needs of the family, its size and composition, the size and location of the home, and amount of family income. Climate, fashion, racial and local customs also must be considered. Unfortunately, in the numerous cost of living studies, little attention has been paid to the amounts of the various commodities purchased at one time. We do know, however, that family purchasing procedures are markedly influenced by the decreasing size of the family and the trend toward urbanization and apartment-house living with fewer rooms, and smaller kitchens and storage spaces for food and household supplies.

The family spends less time than formerly within the home. Fewer household servants are employed and housework is made as simple as possible, partly by consuming more meals outside the home and partly by buying many foods in a form ready for consumption. Goods of all kinds are easily and quickly available and may be ordered by telephone. All of these factors, together with an increasing recognition of the importance of changing fashions, are working together to make the American housewife a hand-to-mouth buyer, who buys frequently and in increasingly smaller units.

<sup>6</sup> U. S. Dept. of Labor, Bureau of Labor Statistics, *op. cit.*, p. 1040.

<sup>7</sup> Prepared by Medora M. Ward, Bureau of Home Economics, United States Department of Agriculture.

### Buying of Furniture and Home Furnishings

As a rule, the kind and cost of home furnishings correspond to the standard of living which a family enjoys. However, the reduced size of the average family and house automatically reduces the number of chairs, tables, beds, and other types of furniture necessary to complete the furnishings of the home. Individual pieces of furniture are less massive and have increased usefulness and adaptability. With the passing of the spare bedroom, the living-room couch or davenport often may be converted into an extra bed. A table often serves the double purpose of dining and living-room use. Chairs are less frequently "kitchen," "dining-room," or "bedroom" chairs but are of a type to be used appropriately in several rooms. Realization of the importance of fashion changes, as well as recognition of the possibility of moving into a different house or apartment, leads logically to the practice of buying for current needs only.

Retailers are recognizing the actual needs of the consumer and are selling many well-designed single or "occasional" pieces of furniture.

The same consideration of present needs is applied to the purchase of dishes, household linens, and silverware. The dozen is no longer, as formerly, the almost universal standard purchase unit. Table linens, china, glassware, and silver are now frequently bought on the basis of service for eight, six, or even four persons.

Formerly, a bride filled her "hope chest" with as many dozens of all kinds of household linens as she could possibly afford to buy. She often accumulated a supply that lasted through her lifetime. The present-day bride is advised to choose her linens on a basis of the number of people in the household and the number of beds in the home.<sup>8</sup> Such a plan supplies her actual needs and avoids a surplus for which she may have no storage facilities and which might become obsolete through a change of fashion.

### Buying Procedures as Related to Foods and Household Supplies

The trend of the American consumer toward hand-to-mouth buying is most marked in present-day food purchasing practices,

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<sup>8</sup> "The linen supply for the new home." *Good Housekeeping*, 92 (6): 102, 1931.

and correlates closely with the trend toward smaller home-storage facilities.

"The modern tendency toward smaller living quarters, and especially toward small kitchens, means that the housewife's storage space is increasingly limited. The modern grocery is her storeroom from which she expects to be able to take as large or as small quantities as will meet her needs."<sup>9</sup>

That the quantities necessary to meet the average needs are small is shown by an investigation by C. E. Artman of the distribution of perishables in New York from February, 1923, to May, 1924.

"Retail sales in the metropolitan area are prevailingly made in small quantities of a few pounds or quarts, a dozen, or a single unit, according to the commodity. Individual sales range in volume from 1 pound to 7 or 8 pounds of articles sold by weight, from 1 to 5 quarts when sold by measure, half a dozen to a dozen fruits, 1 to 2 heads of lettuce, 1 or 2 melons, and correspondingly small quantities of other perishable."<sup>10</sup>

A similar study<sup>11</sup> not only indicates the small quantity of the average purchase but also shows the small range in price for the standard retail sale from a minimum of 20.3 cents to a maximum of 27.8 cents with a weighted mean value of 25.3 cents. "It is evident that the *value* of the standard retail sale is decidedly less variable than is the *size* of sale."<sup>12</sup> That the 25-cent sale is considered of great importance by the food retailer is evidenced by the frequency with which it is quoted as the price of several pounds of bulk foods or of several units of canned or packaged foods.

However important the 25-cent price may be, the trend toward still smaller purchase units for food is continuing. This is shown by the introduction of grocery departments into established 5 and 10-cent stores, and the opening of new grocery stores merchandising on the 5 and 10-cent basis.

Contributory reasons for the interest of the American consumer in smaller units of foods are the greater diversification of the American diet due to the increasing availability of foods from

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<sup>9</sup> Monroe, D., and Stratton, L. M. *Food buying and our markets*. Boston, M. Barrows & Co., 1925, p. 6.

<sup>10</sup> Artman, C. E. *Expense factors in city distribution of perishables*. U. S. Dept. of Agri., Dept. Pub. 1411, 1926, p. 9.

<sup>11</sup> Artman, C. E. *Food costs and city consumers*. New York, Columbia University Press, 1926, p. 79.

<sup>12</sup> *Ibid.*, p. 80.



all parts of the world, the increasing trend toward eating outside of the home,<sup>13</sup> and the actual reduction in the amount of food needed per person.<sup>14</sup>

That this trend toward buying in small quantities increases the cost of food, has been demonstrated repeatedly. In 1925 Good Housekeeping Institute compared costs of large and small packages of identical brands and qualities of 25 different foods. A large and a small package of each food was purchased on the same day and in the same store. The total cost of the 25 large packages was \$15.26. The same amount of food if purchased in the small containers would have cost a total of \$21.46. The saving possible through buying the large rather than several small packages was \$6.20.<sup>15</sup>

"Buying the small containers is one of the worst ways of wasting money because the housewife has nothing in return, neither added convenience nor better food. In fact, many canners say quite frankly that the lower grades of fruit are packed in small cans."<sup>16</sup>

Worth while savings may be made by careful price comparisons and quantity purchasing of soaps and other household cleaning supplies. The fact that aging improves soaps and cleaning powders should not be overlooked.

Many other similar examples could be stated. The retailer is justified in asking the additional price for the smaller unit purchase. Distribution costs amount to a very high percentage on a small sale. The percentage of the selling price which must go to operating costs decreases as the size of the unit sale increases.

In addition to the savings possible through buying large rather than small packages, the housewife who has available space for storing staple groceries can often save by taking advantage of special sales. Students in the home management classes at the University of Washington found that, working with a theoretical

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<sup>13</sup> Nystrom, P. H. *Economic principles of consumption*. New York, Ronald Press, 1929, p. 318. "The number of restaurants, (in the United States) is said to be increasing at the rate of 9,000 a year."

<sup>14</sup> Wolman, L. "Consumption and the standard of living." (Conference on Unemployment. *Recent economic changes in the United States*. New York, McGraw-Hill Book Co., Inc., 1929, 1:27.) "For many years there has been a significant and practically continuous trend toward smaller food requirements per capita—in the physiological sense, not the economic."

<sup>15</sup> Teeter, V. Z. "Do you save on the size of the package?" *Good Housekeeping*, 82 (1): 68, 1926.

<sup>16</sup> Monroe and Stratton, *op. cit.*, p. 146-147.



budget, food for one week for a family of five, purchased at regular prices, cost \$11.31. The same food purchased at Saturday sales, when special prices were featured, cost \$8.84, a saving of \$128.44 per year, or almost 22 per cent of the total food cost.

The housewife must consider several factors when buying in larger quantities.

"For example, one must consider the amount of discount to be gained from the larger purchase, the probable waste and deterioration that will arise from domestic storage, the care required to prevent spoilage, the storage facilities, the probable effect of the larger quantity on hand on the waste in cooking and at the table, and the investment involved in the purchase. Some goods, such as canned goods, can often be advantageously purchased for a year at a time when funds and storage facilities are available. It may be appropriate to purchase supplies of other things for shorter periods. Proper planning will enable quantity purchasing to save not only the household money but the housewife's time as well."<sup>17</sup>

The increasing importance of cash-and-carry grocery stores has probably accelerated the trend toward hand-to-mouth buying. Many women who carry home their own groceries prefer to buy the smaller packages at a slight additional cost rather than to have the inconvenience of carrying heavier packages.

In addition to the trend toward the purchase of smaller units of food, there is an increasing tendency to buy in containers foods formerly sold in bulk. Packaged goods present an attractive appearance, are more conveniently and efficiently handled by the retailer, are far more sanitary, and many times are of better quality than bulk goods. On the other hand, bulk groceries are cheaper.

"In studies at Teachers College, Columbia University, more than two hundred comparisons of bulk and package purchases were made. The bulk were less expensive in 85 per cent of the cases. . . . If the retail store is clean, and the food is handled carefully, it is safe to buy cereals which are to be cooked, bacon to be fried, and similar products in bulk. . . . Be very sure the quality compensates for cost."<sup>18</sup>

Chase and Schlink decry the fact that the size and shape of the package often is deceptive to the customer who frequently pays more per pound for boxed or package goods than he realizes.

"One of the interesting developments of the higher salesmanship is the treating of the weight or contents of a package as a matter of no

<sup>17</sup> Waite, W. C. *Economics of consumption*. New York, McGraw-Hill Book Co., 1928, p. 202-203.

<sup>18</sup> Monroe and Stratton, *op. cit.*, p. 56.

consequence to the buyer. . . . The fact that package goods are handy, and by a judicious use of paraffined paper can be kept relatively fresh, is no excuse for attempting to remove them from all standards of relative cost per pound. The consumer may be glad to pay more per pound for convenience, but he ought to know *how much more* he is being called upon to disburse. The record should be clear. The net weight should be stamped on every package, bar, cake and bottle for purposes of comparison. No package resembling standard weights—but a little lighter—should be legally salable.”<sup>19</sup>

### Summary

The outstanding trends of present-day household purchasing are:

1. The trend toward hand-to-mouth buying.
2. The buying of smaller units.
3. The buying of articles, especially foods, ready for consumption.
4. The buying of packaged foods instead of bulk foods.

These trends have developed logically as:

1. Merchandise has become more readily available.
2. Families and homes have become smaller.
3. Families spend less time in the home.
4. Storage space in the home has been reduced.

The advantages of quantity buying:

1. Saving in cost.
2. Saving of time in marketing.
3. Convenience of having supplies at hand when planning meals.

The disadvantages of quantity buying:

1. Possibility of spoilage.
2. Possibility of waste through lavish handling.
3. Possibility of loss through theft.
4. Loss of interest on money invested.
5. Additional housework necessary in keeping storage closet clean and in order.

The advantages of hand-to-mouth buying, and purchase of small units especially of foods:

1. No waste or spoilage.
2. Tendency to greater variety in diet.
3. Elimination of left-overs.
4. Ease of handling (especially when purchased at cash-and-carry store).
5. Only small storage space necessary.
6. Care in the home minimized.

<sup>19</sup> Chase S., and Schlink, F. J. *Your money's worth; a study in the waste of the consumer's dollar*. New York, Macmillan Co., 1927, p. 115-116.

The purchasing of foods and household supplies depends so largely upon the size of the family income, the size and location of the house, and particularly the amount of storage space available in the house that recommendations are difficult. Practices which may be advisable in the country, in towns, and in smaller cities, where most of the families are living in detached houses and where the groceries from the cash-and-carry stores are carried home in the family automobile, would not be practical for families who own no automobile and who live in city apartments, where storage space is at a premium. Any recommendation must be judged in the light of an individual situation.

Economical purchasing procedures for foods and household supplies:

1. Buy in as large quantities as *can be stored conveniently*, and used without waste from spoilage.
2. Keep posted on the regular prices of staple foods and household supplies in order to gauge the savings possible through taking advantage of special sales.
3. Watch market conditions and know whether the general price trend is upward or downward. Take advantage of seasonal low points and of rising markets for quantity buying.
4. Consider the value of time and effort as well as money:
  - (a) When deciding between charge-and-deliver and cash-and-carry stores.
  - (b) When deciding whether to buy in large or small quantities.
  - (c) When deciding whether to buy by bulk or in packages.
5. Keep an emergency supply of foods on hand which will provide at least one meal at short notice. A larger supply is advisable under many circumstances.

## SELECTION <sup>20</sup>

The ability of a family to finance the building of a house or provide adequate funds for housing depends not alone upon its income. The buying policies of the household are often the determining factor. This is more true at the present time than ever before, since now practically all of the commodities used by the home, as well as many services, are purchased. Successful home-making today is to a great extent a matter of intelligent spending. It is therefore unfortunate that modern tendencies have brought questionable standards which make wise spending difficult and that modern merchandising practices have made intelligent selec-

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<sup>20</sup> Prepared by Ruth O'Brien and Olive Hartley, Bureau of Home Economics, United States Department of Agriculture.



tions largely impossible even when standards are high. Many of the problems of home ownership and the even more fundamental difficulties of modern family life are traceable to this condition and it should be recognized as one of the most serious problems the householder faces today. "Indeed, to some who have considered the problem in its broadest aspects, it appears that unwise spending has definite cause and effect connections with national progress or decay."<sup>21</sup>

### The Homemaker as a Buyer

**Her difficulties.** Household buying is done largely by the homemaker. It has been estimated that she makes from 75 to 85 per cent of all purchases. The selection which this involves has become an important part of her job and she finds it difficult for many reasons.

The retail market offers her hundreds of different commodities and many different qualities of the same commodity. This varied assortment is baffling in itself. In addition, overproduction has brought an emphasis on sales at all costs and this in turn has resulted in sales pressure<sup>22</sup> and advertising devices and practices which have further confused her.

"People are consequently being taught by the most ingenious and startling artifices to imagine they must have what they do not really need, and to be satisfied with standards less exacting in many respects than they used to be. Mob psychology rather than individual preferences and susceptibilities regulate the hackneyed products they are urged to accept . . . Character suffers; senses of value become warped."<sup>23</sup>

<sup>21</sup> Edie, L. D. *Principles of the new economics*. New York, Thomas Y. Crowell Co., 1922, p. 347.

<sup>22</sup> "A new economic gospel is being preached to the American people—the gospel of spending. Descendants of the men who pondered the thrifty maxims of Poor Richard are being assailed by high power salesmanship and the slogans of the advertising expert. The urge to greater consumption and freer spending crowds in from every side. . . . After all, it is not so much the amount of money that is spent, as the way in which it is used and the kind of things that are bought with it, that determines the economic welfare of the individual or of the nation. . . . Discrimination between the use of wealth and the waste of wealth has always been a vital element in real economy, and always will be, whether we think in terms of cents or of millions. Upon the degree of wisdom with which Americans make this discrimination will depend, in the long run, the effects of the new economic gospel of consumption." Cowdrick, E. S. "The new economic gospel of consumption." *Industrial Management*, 74:209-211, Oct., 1927, p. 209, 211.

<sup>23</sup> Padel, C. G. *True values in business and buying*. New York, B. C. Forbes Publishing Co., 1930, p. 127-128.

"To go near a modern store is to be led into a series of temptations to buy this, that and the other thing."<sup>24</sup> "The forces of a competing commercial world are urging her [the homemaker] to buy, but few of them are giving her information which will help her buy wisely."<sup>25</sup>

She has done this buying under all these disadvantages and with few circumstances in her favor. She usually has had very little training in buying and can never hope to have the specialized knowledge of an institutional buyer. There are many articles, especially the more expensive pieces of household equipment, which are purchased only once or twice in a lifetime. It is therefore often impossible for her to profit by what may have been a very costly mistake. She is buying in small quantities, so her bargaining power is small and her efforts in getting information are very ineffectual.

Her only means of ascertaining value is to inspect the goods at the counter, and make what simple tests she can by feeling, smelling and tasting. In former times these methods were usually satisfactory, for there were few articles offered for sale which she had not made herself and thus acquired a recognition of quality which the tests merely supplemented. The inadequacy of counter inspection today is illustrated by a study of consumer judgment in the selection of sheeting which was recently made under the direction of Rosamond Cook of the University of Cincinnati.<sup>26</sup> Nine brands of sheetings were analyzed in the laboratory and were then judged by three groups of people; namely, consumers, salespeople, and a miscellaneous group of textile teachers. These groups rated the sheets in widely different orders, none of which corresponded to the laboratory rating. They were able to make accurate judgments only when there was a wide variation in quality.

This lack of information upon which to base intelligent selection results in purchases made largely by guess, with price as the chief basis of choice.<sup>27</sup> There has been much discussion among

<sup>24</sup> Edie, *op. cit.*, p. 356.

<sup>25</sup> American Home Economics Association. *Household purchasing*. Baltimore, Md., 1930, p. 1.

<sup>26</sup> Cook, R. C. "Do your customers really know your product?" *Cotton and Its Products*, 2 (1):13, 14, Jan., 1926.

<sup>27</sup> "Price is not a measure of intrinsic value, but it is the determinant when the buyer has a choice of products that are apparently of equal merit." Mahin, J. L. *Advertising; selling the consumer*. 2d ed. [Garden City N. Y.] Doubleday, Page & Co. (for the Associated Advertising Clubs of the World), 1916, p. 15.

economists as to the dependability of price as a criterion of quality, but the majority seem to agree, and observing consumers have learned by experience, that in the present retail market, price is seldom an accurate measure of quality. The same price is often asked for commodities of widely differing value.

"The consumer's standards in judging many of his possible purchases are indeed of strange construction—a mixture of his own experience, the ancient adages of trade, the tips of 'wise' friends, the slogans of advertising campaigns, the 'line' of a high-pressure salesman, and a faith in well-known brands. It is not strange that often he must view the price as his main criterion of worth. In such cases he has come to know not whether an article is good at the price, but by its price whether it is good."<sup>28</sup>

It is common knowledge among distributors that this reliance on price as a criterion of quality has brought about a state of affairs in which consumers are afraid of a low price even when it represents the honest value of a given article.<sup>29,30</sup> Sales are often increased by the simple process of raising the price.

"The average woman, therefore, has to learn the art of spending the family income by the expensive method of trial and error. Probably upwards of \$30,000,000,000 of family expenditure is thus carried on annually by the method of 'fumbling through.' All of this state of affairs is not due to any incompetency on the part of the family business managers, but rather is due to the traditions, customs and modes of living which appear in the present-day family institution."<sup>31</sup>

<sup>28</sup> Lyon, L. S. "More light for competition." *Social Forces*, 6 (2): 283-287, Dec., 1927, p. 286.

<sup>29</sup> "It is a frequent policy nowadays to offer goods at prices which are conspicuously high. . . . Goods priced above the market level ordinarily require heavy advertising, careful salesmanship and the use of brands and trademarks." Edie, *op. cit.*, p. 326.

<sup>30</sup> "It is characteristic . . . that women, thus forced into the market to buy and urged on by a heavily increased advertising appeal, must as yet perform this task dependent almost entirely upon the counsel of the selling agent, whose primary concern is to capture the market. In the absence of the knowledge requisite for buying on the basis of quality, the Middletown housewife must in the main . . . depend upon 'looks' and 'price.' The following frank statement by a local women's ready-to-wear dealer in the course of a discussion at the Ad. Club reveals the helplessness of the buyer who has to depend upon such criteria: The question was raised as to women's liking higher-priced garments and buying by price, provided a garment has style. One dealer said, 'You men can't blame us: of two garments of the same quality the women will buy the more expensive; they don't know, but think it must be better. You wouldn't have us lose that sale to her, would you? She mightn't buy at the lower price because her friend may have paid \$70 for her coat and she is suspicious of a \$40 coat. Of course, we have to put the price where she'll buy under those circumstances.'" Lynd, R. S., and Lynd, H. M. *Middletown, a study in contemporary American culture*. New York, Harcourt, Brace & Co. 1929, p. 166.

<sup>31</sup> Edie, *op. cit.*, p. 356-357.



It tends to cause a dissipation of the family income which makes owning or renting a satisfactory home impossible.

### Efficacy of Suggested Remedies

This situation has not gone unnoticed. It has been the subject of investigation by economists<sup>32, 33, 34</sup> and has been studied by women's clubs, home economics and extension classes and by special conferences<sup>35</sup> called to consider consumers' problems. The present maladjustment between production and consumption has stimulated further interest, since many believe that this could have been partially averted by adequate attention to consumers' needs. There has been an increasingly large number of articles and books devoted to the subject. Perhaps the book "Your Money's Worth"<sup>36</sup> did more than any other one publication to arouse public opinion. However, very little in the way of improvement has been accomplished.

This is due largely to the fact that although the consumers' collective buying power represents the most influential force in the country, its unorganized condition renders it powerless to enforce its desires upon the well-organized manufacturing and distributing agencies. In spite of the often reiterated statement that consumers control the market and can get whatever they want, the truth is that they are virtually helpless in bringing about any reforms for their benefit. Lack of demand or threatened legislation is the only evidence of consumer dissatisfaction which commands attention in the merchandising world. In most cases consumers are unable to use these weapons effectively. They must either buy what falls short of their desires or do without needed articles. The result is that most retail purchases are compromises. "He [the consumer] buys what he finds in the stores, pays the

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<sup>32</sup> Phillips, V. *Evidence of the need of education for efficient purchasing; an analytical study of consumers' difficulties in choosing and buying clothing and home furnishings, for the purpose of formulating practical suggestions for successful buying.* New York, Columbia University, Teachers College, 1931.

<sup>33</sup> Coles, J. V. *Standardization as an aid to the consumer in market selection.* University of Chicago Thesis, 1930. (Unpublished.)

<sup>34</sup> Frost, W. *The consumer's purchasing problem.* Washington, Brookings Institution Thesis, 1930. (Unpublished.)

<sup>35</sup> University of Chicago, Department of Home Economics. *Problems of the household buyer.* Ann Arbor, Michigan, Edwards Brothers, 1928. (Mimeographed.)

<sup>36</sup> Chase, S., and Schlink, F. J. *Your money's worth; a study in the waste of the consumer's dollar.* New York, Macmillan Co., 1927.

price which he has to, and comes away with the feeling that he is at the mercy of some market juggernaut."<sup>37</sup>

**Consumer education.** Many remedies have been suggested. Consumer education has been one most eagerly seized upon, not only by those who are sincerely trying to help but also by those seeking a way of evading responsibility. By shifting the blame to the consumers, some responsible for present conditions see a harmless way of dispelling growing criticism of merchandising methods. On the other hand, many educators believe that an enlightened public will bring improvements eventually and are including courses on buying in both colleges and secondary schools.

Much of the work in the state and Federal extension service is now directed toward instruction in problems of purchasing.<sup>38</sup>

"The question of the farm income, of adequate standards of living for the farm home, and of the buying power of the farmer's dollar engaged the attention of groups of local men and women under the leadership of county, state and national extension workers in numerous counties during 1929. . . . Economic conferences were held in 1929, in Arkansas, Colorado, Idaho, Illinois, Montana, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia and Wyoming. The economic approach not only reënforced the food-production program, but emphasized the necessity of intelligent buying for health and for economy."<sup>39</sup>

On account of the increase in the number of farms served by electric light and power, particular attention has been focused upon furnishing information on the wise purchasing of household equipment, its care, repair and use.<sup>40</sup>

Programs of women's clubs<sup>41</sup> have tended more and more to deal with consumers' problems, and women's magazines and day-time radio talks contain much material either directly or indirectly allied to the subject. In an attempt to give definite information which will assist consumers in their purchasing, one such

<sup>37</sup> Edie, *op. cit.*, p. 362.

<sup>38</sup> "Sales resistance" was something about which our grandmothers did not have to worry. The farm homemaker today finds this quality one of her most valued possessions. Reports of extension workers for 1929 indicated that the farm homemaker is fortifying her 'sales resistance' with a study of home equipment and furnishings that will enable her to make a wise choice. Specialists reported that the women have learned to think before they buy." U. S. Dept. of Agri. *Cooperative extension work, 1929, 1931*, p. 87.

<sup>39</sup> *Ibid.*, p. 85, 86.

<sup>40</sup> Rokahr, M. "Home management in extension work." *Jour. Home Econ.* 23:635-637, July, 1931.

<sup>41</sup> General Federation of Women's Clubs. *Buy intelligently.* [Washington, D. C., 1931.]

magazine is searching out the grades and specification which are now in existence and has distributed over 33,000 leaflets outlining these.<sup>42</sup> Many business firms and associations of firms have established so-called "educational services," but most of these necessarily represent merely another aspect of the firm's advertising program and are disappointing as a source of fundamental information.

The net gain of all these efforts is a marked and significant increase in the general knowledge of many women, both in technical subject matter and in merchandising practices. This information directs attention to intrinsic values but is of little definite assistance in the purchase of any one article.

In some cases this is due to the fact that even when the purchaser has learned the comparative value of the materials used in a given commodity, the article in question is so constructed that it is impossible, without destroying it, to determine which of these materials have been employed. Then again, in the case of many household supplies and pieces of equipment, there is a lack of information in existence as to what combination of construction characteristics will produce given qualities such as durability or effective performance.

Many who started out enthusiastic over the possibility of consumer education are becoming convinced that the scarcity of subject matter which is of definite value and the diversity and nature of the commodities to be purchased combine to limit the efficacy of this method as a sole means of providing the help needed in the purchase of a specific article. A certain amount of education along this line makes a more cautious buyer and may sometimes prevent the purchase of products which are at the very lowest end of the scale. But in most cases this is all it can do unless it is supplemented by other aids and the subject matter increased by well-directed research.

**Salesman education.** The education of salespeople handling household materials is another suggested remedy. This presupposes that the retail buyers and others in the distribution field have facts concerning quality and performance of merchandise which could be transmitted to the clerk, who in turn could pass it on to the consumer.

This idea that the retail buyer is an expert in regard to the mer-

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<sup>42</sup> Bane, L., "How to buy." *Ladies' Home Journal*, 48 (2) :92, 111, Feb., 1931.



chandise he buys is a traditional one hard to dispel, but under present marketing conditions has little basis in fact. "Several hosiery buyers have confessed that they could not tell whether a stocking offered to them as pure thread silk was a high or low grade of silk, or even a mixture of silk and artificial; . . . whether it was pure dye or loaded; whether it was ingrain or dip-dyed."<sup>43</sup> The demand on the part of retailers<sup>44</sup> for the help of testing bureaus in their own buying is evidence of their lack of confidence in this respect, but the number of these bureaus is yet too small to be a source of many data.<sup>45</sup>

The buyer for a retail store never follows his goods into actual use and therefore has no first-hand knowledge of their performance. His judgment as to their reaction in service is measured almost entirely by whether or not complaints are made by customers, and this has been shown by a number of investigators to be of little value. The percentage of dissatisfied customers who will subject themselves to the unpleasant aspects of making complaints is very small.<sup>46</sup>

In many instances the factual information of the salesperson is no greater than that of the purchaser. For example, Cook's<sup>47</sup> study indicated that the salepeople's judgment on the sheetings submitted was no more accurate than the consumers'. Their ratings agreed neither with the laboratory analyses nor the purchasers' opinions. The classes held for salespeople by store executives are devoted chiefly to instructions on making out sales slips and other routine store procedures. Books on salesmanship deal not with facts concerning merchandise but with the psychology of selling,<sup>48</sup> which, after all, is merely the science of exerting suc-

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<sup>43</sup> Brown, E. *Marketing*. New York, Harper & Brothers, 1925, p. 89 (quotation from the Association of Hosiery and Underwear Manufacturers News Letters).

<sup>44</sup> Freedman, E. "The testing of merchandise by department stores." *Jour. Home Econ.* 22:732-734, Sept. 1930.

<sup>45</sup> Anonymous [Interview with F. Stutz, Better Fabrics Testing Bureau]. "Testing of goods makes little gain." *N. Y. Times*, Mar. 9, 1930, II:22:1.

<sup>46</sup> Fisher, K. A. "Colors that are fast are what women are asking for today." *Good Housekeeping*, 87 (1):91, 132, July, 1928.

<sup>47</sup> Cook, *op. cit.*

<sup>48</sup> "More care is being paid to the selection of salesmen, and scientific tests and intelligence tests are being extended as a means of selecting men who have the most native ability in persuading people. Psychological qualities of persistence, force of personality, initiative, alertness, sociability, and aggressiveness are at a premium in salesmanship. . . . In addition to training salesmen, modern corporations surround them with incentives to maximum selling effort by the use of prizes, bonuses, quotas and contests. Instincts of rivalry, display, or pugnacity are strongly aroused." Edie, *op. cit.*, p. 303.

cessful sales pressure. The chief emphasis of a store must necessarily be on making sales, and the pressure on most clerks to make their sales quotas not only discourages but absolutely prohibits the use of time in answering the questions of a customer. The "best salesperson" is the one who sells the most with the least talk. The "ideal customer" is the one who asks no questions but merely buys.

As long as these conditions and attitudes prevail it is doubtful whether much assistance will be given the consumer through salesman education. This is unfortunate, since many customers look to salespeople for help and often base their purchases upon statements which, due to ignorance and not willful misrepresentation, have no basis in fact and are misleading. In a recent investigation of general buying problems, 92 per cent of the 123 women questioned expressed a desire for better informed salespeople; 82 per cent wanted more interested salespeople.<sup>49</sup>

Salesmanship can be made one of the best aids to intelligent buying. Informative labels on the merchandise for the benefit of the clerks, enlarged facilities for helping the buyer determine more about the goods purchased and for getting this information to the clerk, and a shifting of the emphasis from the immediate sale to consumer satisfaction would all do much to improve the present situation.

"Some merchants may feel that their business is to sell, and that study classes in the stores upset their system and cause waste of time of buyers and salespeople. A more intelligent consuming public should eventually make up for this first expenditure of time. Such cooperation between education and business seems to be necessary to integrate interests and to make education for consumption practical."<sup>50</sup>

**Buying by brand and trade-mark.** An extensive system of brands and trade-marks has grown up in this country, especially in connection with household supplies and equipment. By focusing advertising campaigns on brands, many firms seek to gain a following which will decrease the competition of their product with others in the same field.<sup>51</sup> The amount invested in main-

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<sup>49</sup>Phillips, *op. cit.*, p. 8.

<sup>50</sup>*Ibid.*, p. 108.

<sup>51</sup>"Of late, particularly favored members of the groups dependent upon wage incomes have taken to imitating the more well-to-do classes, . . . The type of appeal which brings about this situation rests substantially upon the use of trade brands. There is no other means by which to single out a particular dealer's goods from the general run of goods, and attract unusual,

taining or attempting to maintain this supremacy<sup>52</sup> is so great and the custom so embedded in modern merchandising thought that any movement which might tend toward the introduction of another basis of selection has been strongly opposed by the manufacturing groups.<sup>53</sup> There is an insistence on the part of the manufacturer that the consumer should buy by brand and should trust the manufacturer that the price is a fair measure of its value and that the claims of merit are justified.

Often this system enables a manufacturer to establish and maintain a higher standard than would otherwise be possible as exemplified in the merchandising policy of a company producing rayon.<sup>54</sup>

"After having adopted a brand for first quality output it entered on relations with weavers, knitters and others whereby the branded product was made known to the consumer, and the quality of the output, whether in knit or woven goods, remains guaranteed from the testing rooms of the fiber manufacturer right through every test applicable in various processes down to the user. This was made necessary by the constant debasement of rayon products by careless or designing manufacturers after they had been passed as first quality from the spinning mills."<sup>55</sup>

The disadvantage is that it means "blind" buying by the consumer and opens the way to various abuses as regards price, quality and usefulness. The consumer has no means of determining

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permanent attention to them. The tactics of creating demand for high-priced goods by the use of advertised brands is mainly a matter of understanding social psychology. Dealers who can cultivate shrewdly the instinctive demands of people who are heavily susceptible to psychological traits of display, prestige, imitation, rivalry, pride, vanity, ostentation, and suggestion hold a clue to the building of a market for their wares at prices well above the general market level." Edie, *op. cit.*, p. 326-327.

<sup>52</sup> Schlink, F. J. "The responsibility of the home economist as a consumer." *Practical Home Economics*, 8:261-262, Sept., 1930, p. 262.

<sup>53</sup> "... the project of specifications for sheets . . . very clearly illustrates the nature of the fundamental difficulty which you are bound to meet over and over again. . . . When the technical work began to assume definite form the manufacturers reconsidered their position . . . they indicated an unwillingness to proceed either with the setting up of definite specifications or with making available . . . data which the consumer representatives consider an essential minimum. . . . The manufacturers have made it clear that they are greatly concerned in regard to the effect that the project for nationally recognized specifications for sheets might have upon their trade brands, in the building up of which they have spent great sums in advertising." Agnew, P. G. Technical standards for consumer goods—A "five-year plan"? *Jour. Home Econ.*, 23 (12):1095-1102, 1931, p. 1097-1098.

<sup>54</sup> Spooner, J. A. "The Viscose Company develops plan for selling quality instead of price." *Sales Management*, 28 (1):15-16, Oct. 3, 1931.

<sup>55</sup> "Textile industry uses standards in marketing products." A. S. A. Bulletin no. 58:17, Feb., 1931: Reprinted from *Boston Evening Transcript*.



whether the price is fair or of comparing qualities of different commodities in the same class.

This is well illustrated by the present situation in regard to household cleaning supplies. The chemicals useful in cleaning are limited in number and inexpensive when purchased in bulk under their proper chemical names. They are adequately described in the technical literature and in a very few popular publications.<sup>56</sup> However, such information is not widely disseminated among homemakers and, even if it were, under present marketing conditions it would be of little value to them from a practical standpoint. A large part of the homemakers' difficulty is lack of information concerning the chemicals most effective for a specific purpose and the particular combination of such compounds that will give a satisfactory cleaning reagent. A more serious difficulty is the lack of facilities for purchasing these materials directly on the retail market. The supply houses for commercial laundries and dry-cleaning establishments sell such chemicals unmixed and correctly named. Purchasing agents for large institutions order by chemical identity and under definite specifications. But in most cases the homemaker can do neither.

Some of these chemicals are not sold at all on the retail market, and almost none of them are sold there by their chemical names. They appear either alone or in mixtures but always under trade-marked names, which give no clue as to their identity. This applies to the whole gamut of soaps, soap powders, washing agents, scouring powders, sweeping compounds, polishes, spot removers, and dry-cleaning agents.

These trade names are in many cases misleading, as evidenced by efforts made by the Federal Trade Commission to correct some of the practices. At the best, they leave the purchaser completely in the dark as to the material being purchased and its quality. There are perhaps no other commodities which, from the homemaker's point of view, are so shrouded in mystery. This has produced, in the minds of many, a naive belief in the magic of these unknown romantically named products which would not exist if merchandising practices had encouraged a more scientific approach.

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<sup>56</sup> Smither, F. W. *Washing, cleaning, and polishing materials*. U. S. Dept. Commerce, Bur. Standards Circ. 383, 1930.

"Analyses of numerous proprietary cleaning preparations revealed many disguised ordinary cleansing agents selling at many times their market value. Even more important is detection of extremely effective preparations which contain highly caustic or strongly acid ingredients. Such preparations would seriously damage building equipment if used regularly or frequently."<sup>87</sup>

There is a distressing lack of performance standards or quality specifications for such products, and the consumer therefore has no way of judging the quality of the particular one purchased or of comparing price in terms of value.<sup>88</sup> The homemaker needs information concerning the chemicals most effective for cleaning specific kinds of surfaces and for removing specific kinds of soil. In addition, she must have facilities for purchasing these materials under their correct chemical names.

A similar condition is to be found in many other fields of merchandising. Trade and brand names have become a necessity in modern merchandising as a means of identification. But the advantage to the consumer of the "buy by brand" policy is being questioned, and a reaction against it on the part of the public is becoming apparent. There are many indications that brand names will be supplemented more and more by definite statements concerning the characteristics and standards of the products, a practice which should be given every encouragement.

**Advertising as an aid to wise selection.** It has been urged that advertising furnishes information which can be used as a basis for making intelligent selections. The amount of money<sup>89</sup> and human energy being put into this phase of merchandising is enormous and is often justified on the ground of its educational value.

"The policy of advertising has raised the general standards of consumption in terms of cleanliness, quality, sanitary features, and artistic appearance. . . . The preponderant effect of a decade of intensive advertising is

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<sup>87</sup> Butz, G. N. *Individual occupancy buildings*. 1930 Proceedings National Association of Building Owners and Managers, p. 107, 108.

<sup>88</sup> "The purchasing agent of the University of Chicago . . . mentions a Chicago firm that has made large sums selling soap that consists of 92 per cent water, 3 per cent sand, and 5 per cent soap." Schlink, F. J. "Tests and specifications for the household." *Jour. Home Econ.*, 19:181-184, Apr., 1927, p. 183.

<sup>89</sup> According to a recent estimate, the amount spent annually for advertising increased 50 per cent from 1921 to 1927, and amounted in the latter year to \$1,502,000,000. Copeland, M. T. "Marketing." (Conference on Unemployment. *Recent Economic Changes in the United States*. New York, McGraw-Hill Book Co., Inc., 1929, 1:321-424, p. 402.)

in the direction of higher standards of demand and a more versatile, though often extravagant, consumption.”<sup>60</sup>

A number of recent studies have emphasized the lack of factual material in advertising and the tendency to go to greater and greater extremes of absurdity in the search for superlatives of expression.<sup>61</sup> The increase in the amount of irrelevant matter, and the introduction of extravagant statements and the testimonial are modern developments which have done much to undermine consumer confidence.

Kenneth Collins, publicity director of R. H. Macy & Co., speaks very frankly on this point:

“We have lied too long. We have worked too many horrible exaggerations into our advertising in the past. I and a great many others predicted two or three years ago . . . that one day the deliberate falsehoods and the horrible misstatements of advertising would make the public so incredulous that in a moment when it is difficult to get business the public would not believe the claims of advertisers. We have seen this demonstrated during the past year with startling clarity. Store after store, national advertiser after national advertiser, has tried to persuade the public to buy—but the public has been fooled too often.

. . . “To read through the pages of the average national magazine today is most illuminating. It shows the muddled thinking of so many. The same old arguments that were being used in 1928 are being used in the year 1931. The same specious reasons to buy are offered; and the same dishonest testimonial advertising is there. Nowhere do I find a disposition to face facts.”<sup>62</sup>

In the opinion of many, modern advertising has a pernicious influence<sup>63</sup> upon the mass of the people, and its only value in connection with intelligent purchasing is to show what commodities and what varieties of commodities are available. It gives no help in judging their comparative values or determining which is best suited to a consumer’s particular needs and pocketbook.

While such agencies as the better business bureaus are having some success in eliminating the most flagrant misrepresentations

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<sup>60</sup> Edie, *op. cit.*, p. 302.

<sup>61</sup> “When we consider some of the present tendencies in advertising, the increasing use of paid testimonials and meaningless slogans, we hesitate to urge consumers to turn to business for reliable information and education.” Phillips, *op. cit.*, p. 104.

<sup>62</sup> Collins, K. “We have lied too long.” *Advertising and Selling*, 17 (4):28, June 24, 1931.

<sup>63</sup> “The greater part of advertising does not present a chain of reasoning, a mass of logic, or a fund of evidence and proof. It works upon the instinctive and emotional nature of people by the process of suggestion.” Edie, *op. cit.*, p. 300.



and frauds in advertising,<sup>64</sup> there seems to be little hope at the present time that its general character will be changed. It undoubtedly could be one of our strongest aids in intelligent buying. This is best shown by a study of modern advertising of industrial goods. The majority of these advertisements are planned to arouse rational buying motives rather than to exploit gullibility. They give information regarding the performance of the product and its construction. This type of advertising is badly needed for consumers' goods.

**Legislation.** Correction of some of the present purchasing difficulties by legislation has been suggested. The effective services rendered by the United States Food and Drug Administration have, no doubt, encouraged this attitude, since this organization has been of inestimable value in safeguarding the health and, in many cases, the economic well-being of the public. However, its authority as regards the latter is very limited. The Food and Drugs Act only confers authority on the United States Department of Agriculture to interfere when foods or drugs sold in interstate commerce are incorrectly labeled as to contents, or when they are injurious to health. Other acts confer similar authority as regards insecticides and naval stores. None of these permit control over advertising aside from that on the label or over statements regarding relative quality as long as they can not be considered false or misleading.<sup>65</sup> As regards intrastate trade, it has no authority whatsoever, although most of the states have passed laws similar to the Federal acts.

The Mapes-McNary amendment to the Food and Drugs Act is a very recent (1930) development of this type of legislation, and

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<sup>64</sup> "Assuming that all the legal devices were used to the fullest possible extent, that the administration of these laws was intelligent and unrelenting, that the courts approached these problems with more sympathy and understanding, would false advertising materially abate? I venture to say that it would not, so long as the psychology generated by a materialistic and commercial age . . . prevails. . . . Newspaper censorship can weed out the blatant frauds. The Better Business Bureau can effectively work from without. But the solution can only come from within. A new business psychology must be bred. A regard for truth and an aversion for falsity must be inculcated. The purchaser must be educated to demand useful and truthful information. Here is a task for the educator and missionary. Here is the opportunity of the trade associations. The lawyer can do little." Handler, M. "False and misleading advertising." *Yale Law Journal*, 39:22-51, 1929, p. 51.

<sup>65</sup> U. S. Dept. of Agri., Food, Drug and Insecticide Administration. *The Food, Drug and Insecticide Administration of the U. S. Department of Agriculture*. U. S. Dept. Agri. Misc. Pub. 48, 1929.

for the first time introduces the matter of compulsory labeling as to quality.<sup>66</sup> It gives the Secretary of Agriculture the authority to promulgate reasonable standards of quality and condition for canned foods and to designate how canned foods shall be labeled when they fail to meet these standards. This will mean that some goods inferior to a good quality, but still wholesome and free from any taint of adulteration, will be available, but will be marked as substandard in order to help the consumer distinguish the qualities on the market.

At present, the only control exercised by the Federal government, in regard to consumer products other than foods, drugs, naval stores, and insecticides, is that carried on under the Federal Trade Commission Act of 1914. This act makes unfair methods of competition in commerce unlawful and gives the Commission authority to require any person or firm practicing such methods to "cease and desist" from their use. In cases of noncompliance, the Commission may petition the Federal courts for enforcement. It may determine what is or is not unfair competition, but its decisions are subject on appeal to review by the United States Circuit Court of Appeals.<sup>67</sup>

The United States Supreme Court<sup>68</sup> recently held that a practice does not come under the jurisdiction of the Commission unless it can be shown that it injures or tends to injure the business

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<sup>66</sup> U. S. Dept. of Agri., Food, Drug and Insecticide Administration. *Amendment of July 8, 1930, to Federal Food and Drugs Act and Requirements thereunder*. U. S. Dept. Agri. Serv. and Regul. Announcements Food and Drug no. 4, rev. 1, May, 1931.

<sup>67</sup> Practices which have been condemned by the Commission include: Misbranding or misrepresentation; adulteration; use of false or misleading advertisements; appropriation of trade marks or trade names or imitation of products of other manufacturers; passing off by a manufacturer of an inferior product for a superior product theretofore made, advertised and sold by him; using standard containers for less than standard weights; alleged indorsement by the Government or by nationally known businesses; falsely representing to the customer that he is getting something at an especially low price. *Annual report of the Federal Trade Commission, fiscal year ended June 30, 1929*, p. 88-91.

<sup>68</sup> "Findings, supported by evidence, warrant the conclusion that the preparation is one which cannot be used generally with safety to physical health except under medical direction and advice. If the necessity of protecting the public against dangerously misleading advertisements . . . were all that is necessary to give the Commission jurisdiction, the order could not successfully be assailed. But this is not all . . . the unfair methods must be such as injuriously affect or tend thus to affect the business of these competitors . . . and it is against that condition of affairs, and not some other, that the Commission is authorized to protect the public." *Federal Trade Commission vs. Raladam Co.*, 283 U. S. (1931), 643; 646, 649.



of competitors. In the case under consideration the consumer's welfare was admittedly at stake, but the Court ruled against the Commission because it had not proved that the practice was affecting competitive business.

During the past few years the Commission has been sponsoring trade practice conferences in the various industries, at which those problems which come under the jurisdiction of the Commission are discussed and rules of fair trade practice are formulated by voluntary action of the group. Commissioner Humphrey recently told the press that the conferences held thus far have accomplished more in a few days to protect the public and honesty in business than the Commission accomplished in an entire year under the former policy of settling nothing except by litigation.<sup>69</sup>

While legislative interference is often necessary and effective, modern tendencies are away from this type of control with all its attendant expense and difficulties of enforcement. A practice which is initiated and enforced voluntarily by the group concerned is more flexible and usually more generally satisfactory. The food grades set up by the United States Department of Agriculture have been developed on this principle. These are discussed later in this report.

**Testing laboratories.** Many economists advocate impartial testing laboratories from which information regarding the performance of various kinds of commodities designated by brand or by manufacturer's name may be obtained by consumers for a small fee. Government laboratories have a large store of information which has been collected about commodities tested in connection with making government purchases. However, their present policy prevents its disclosure.<sup>70</sup> Commercial testing laboratories are used extensively by industries for the testing of raw materials, but the expense of this service and the necessity of supplying each article to be tested make their use impracticable as an aid to consumer purchasing.

Consumers' Research, Inc.,<sup>71</sup> represents an attempt to bring this type of service within the reach of consumers. It is a nonprofit

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<sup>69</sup> "Denies discontinuing trade practice talks." *New York Times*, June 24, 1931, 40:2.

<sup>70</sup> Brady, R. A. "How Government standards affect the ultimate consumer." *Ann. of the Amer. Acad. of Pol. and Soc. Science*, 137:247-252, May, 1928.

<sup>71</sup> Schlink, F. J. "A new economic agency established to guide consumers' purchasing." *American Federationist*, 38:409-412, Apr., 1931.



corporation which undertakes to tell its subscribers the truth about all sorts of products. Its members pay an annual fee of \$2.00 and in return receive a handbook of buying, as well as eight or ten bulletins per year giving what specific information the organization can collect in regard to the relative merits of commodities on the retail market. Although it has been assisted to a very limited extent by gifts of funds, its resources are not yet sufficient to cover the entire field. Some of its tests are made by technical laboratories; on some commodities it has reports from impartial technical sources,<sup>72</sup> such as governmental agencies, the American Medical Association and the American Dental Association. Interested subscribers make tests in their own homes or report their experience with certain advertised commodities, and their findings, with proper precautions for reliability, are passed on to their fellow members.

That there is a rapidly awakening interest in these problems is shown in a startling fashion by the growth of this organization. Formed originally as a volunteer group of technically trained persons who exchanged information on commodities with which their training and work had made them familiar, it has grown from a membership of 565 in October, 1928, to an organization of 22,000 on August 10, 1931, in spite of the fact that it has had almost no advertising and little publicity. This increase has been brought about by the subscribers themselves who have passed the word along to others. The present economic situation has, of course, given it an added impetus, but this does not account entirely for the keen interest that has been shown in its work.<sup>73</sup>

Some of the larger mail order houses maintain testing laboratories in which they check the purchases made by their buyers.<sup>74, 75</sup>

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<sup>72</sup> Loeb, E. "A new weapon for the consumer; Consumers' Research offers its assistance to thoughtful purchasers." *Woman's Press*, 25:366, 386, June, 1931.

<sup>73</sup> "Because of necessity the consumer is studying how he may get the best possible value for his expenditure. With the stock market at unheard-of low levels, unemployment widespread and wage cuts general, it behooves him to make his dollar go as far as possible. Even if it be possible for us to return to the much-touted prosperity of 1927, the wary purchaser will not be so guilelessly caught by external appearance glorified at the expense of quality." Kay, M. "The development of gyp-consciousness; what Consumers' Research is doing." *The Churchman*, 144 (1):10-11, July 4, 1931, p. 11.

<sup>74</sup> "Larger quarters for Montgomery Ward and Co.'s technical department." *Indus. and Eng. Chem., News Ed.*, 9:236, Aug. 10, 1931.

<sup>75</sup> Black, J. "Sears Roebuck laboratory, a factor in textile development." *Textile World*, 80:598-599, Aug. 15, 1931.

Some of these results are published in their catalogs in connection with descriptions of the merchandise offered. This has proven to be a very effective means of giving factual information to purchasers and might well be extended. No doubt some chain stores are also buying largely by specification and could easily pass this information on to their customers. A large department store in New York, one of the few retail stores with a testing laboratory, labels merchandise as to wool content, recommended washing directions, etc., and issues bulletins to the sales force on results of laboratory tests.

A few commercial agencies and organizations have set up testing laboratories and established "approval" services whereby they at least impliedly recommend the article approved. In some instances they limit this recommendation by statements on the label or seal of approval; in others, as far as the purchaser can determine, it is a general approval.

For example, the American Gas Association tests gas appliances and issues seals of approval which can be used by manufacturers on gas appliances meeting the standards of the Association. Most of these tests deal with the safety features of the article, although such matters as thermal efficiency of top burners, strength and durability of construction, accuracy of oven thermostats and even distribution of heat in the oven and the broiler are also given some consideration and will undoubtedly be given more attention in the future.<sup>76</sup>

"The ultimate result desired by the gas industry . . . is that, by the adoption of its approval requirements and the establishment of an agency to stamp meritorious gas appliances, it will eventually become impossible to purchase any domestic gas appliance not certified as safe, efficient, and reasonably durable."<sup>77</sup>

Laboratories of these various types have been effective in keeping very inferior articles off of the market. However, the "blanket" approval system used by many is limited in its usefulness.<sup>78</sup> The service would be greatly improved if the consumer were more fully informed in regard to the tests used as a basis

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<sup>76</sup> Conner, R. M. "A laboratory seal of approval for a gas range." *Jour. Home Econ.*, 23:124-128, Feb., 1931.

<sup>77</sup> Conner, R. M. "The development of safety standards for domestic gas appliances, by the American Gas Association." *Ann. of the Amer. Acad. of Pol. and Soc. Science*, 137:145-150, May, 1928, p. 150.

<sup>78</sup> Frost, *op. cit.* See section "The Magazine Institutes," p. 25.

for the ratings and if more specific facts were given which would assist in deciding between the many "approved" items which occur in the same class of commodity.

**Buying by grades and quality specifications.\*** There are a few grading systems by which consumers can compare the qualities of products in a given class. An extensive system of grade marking of lumber has been established by the National Lumber Manufacturers' Association in cooperation with the United States Department of Commerce.<sup>79</sup> This is of great advantage to consumers using lumber either in house building or for other purposes. Similarly, grade markings have been established by more than a score of other national associations producing materials utilized in home building.

Federal standards have been established by the United States Department of Agriculture for use in the marketing of most farm products.<sup>80</sup> In the case of beef, turkey during the holiday season, eggs, butter and cheese, these carry through to the consumer since there is always an indication of grade placed on the product. Graded beef is marked with a roller grading stamp so that it appears on all retail cuts.<sup>81</sup> This is different from the purple stamp used in Federal meat inspection work to show that the carcass has been inspected for diseased condition. The grading takes place later and is an optional service.<sup>82</sup> It is apparently meeting with

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\* Committee not unanimous on this subject.

<sup>79</sup> National Lumber Manufacturers' Association. *Know the lumber you use*. Washington, D. C., [1930].

<sup>80</sup> "The chief of the Bureau [of Agricultural Economics] has recently said in effect that the consumer phase of standardization—the development of grades on which individual consumers can buy—is the all-important element in the future standardization program. Many of the consumers need and want these grades; their demands must be met and the other consumers must be reached, for until the individual consumers think in terms of qualities and buy on the bases of grades that signify quality, there can not be the most sensitive adjustment of price to quality." Sherman, C. B. *The consumer and the standardization of farm products*. U. S. Dept. Agri., Bureau Agri. Econ., [1930], p. 8, (mimeographed).

<sup>81</sup> Davis, W. C. *Beef grading and stamping service*. U. S. Dept. Agri. Leaflet 67, 1930.

<sup>82</sup> "Under existing circumstances the housewife's meat shopping is too often a battle of wits. Experience has taught her that unless she exercises the utmost care she may obtain a steak or a roast which will prove disappointing. This engenders a spirit of distrust between her and the retailer and involves a needless expenditure of time and effort on the part of both.

"Official grade standards represent definite degrees of tenderness, juiciness, fat, flavor, etc. With such standards in effect and generally understood the problem of the housewife and consumer will be reduced to one of deciding which grade is preferred under existing circumstances. With that decided,



popular favor. In 1931, 149,700,000 pounds of beef were graded as compared with 60,200,000 pounds in 1930.

The Department has also worked out standards for use in the marketing of practically all fruits and vegetables, and it will be greatly to the advantage of the consumer when these carry through to the retail market. At present most of them can be used only by wholesale dealers and consumers buying in large quantities. Under an act of Congress approved February 23, 1931, this service has been extended to cover additional products, including canned goods.<sup>83</sup>

Many of the states are setting up grades for commodities, frequently accepting the Federal standards. In some cases the states have made the Federal permissive standards compulsory. The legislative enactments dealing with technical standards in various fields have been summarized recently by Aronson.<sup>84</sup>

For some ten years the American Home Economics Association, an organization of professional home economists and homemakers, has been advocating the establishment of grades or quality specifications for all staple items bought by homemakers, and recommending that these be made known to the consumer either directly by factual information on labels or by grade symbols. The publicity which this organization has given the idea, as well as the direct support given by its members through their purchases, has been a factor in the introduction of those few grading systems which are now in use in retail selling, but the direct attempts made by the Association in connection with certain specific household commodities have not been completely successful. At various times the assistance of such organizations as the National Research Council has been enlisted, and during the past few years

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an order can be placed by telephone, and the consumer can feel sure it will be properly filled. If the meat received is not of the grade specified, she can invoke the official standards to prove that fact and can demand adjustments. But situations like this will seldom occur when both customer and retailer are dealing on the basis of accepted standards." Gibbons, C. E. *Advantages of standards for livestock and meats*. U. S. Dept. Agri. Misc. Pub. 33, 1929, p. 14.

<sup>83</sup> U. S. Dept. of Agri., Bureau of Agricultural Economics. *Rules and regulations of the Secretary of Agriculture governing the grading and certification of canned fruits and vegetables*. 1931, (mimeographed).

<sup>84</sup> Aronson, J. "Statutory commodity standards." *Columbia Law Review*, 31:872-880, 1931. Reprinted in A. S. A. Bulletin no. 64:22-26, Aug., 1931, under title, "Legal issues involved in buying and selling under statutory commodity standards."

cooperation has been effected with the American Standards Association of which the American Home Economics Association is a member.

Under the procedure of the American Standards Association, conferences of manufacturers, distributors and consumers were held and technical committees set up. These have agreed upon quality specifications desirable for household refrigerators<sup>85</sup> and are recommending that information concerning certain features be given on the refrigerator name plates. This includes facts regarding the cubic feet of usable storage space, square feet of shelf area, the temperature maintained under standard test conditions, amount of ice, electricity or gas required to maintain a given temperature under specific external conditions over a 24-hour period, and some indication of the durability of the refrigerator. Certain manufacturers are now giving a portion of these data on labels of the boxes which meet these requirements and are advertising these qualities of their products. No agreement has been reached yet as to a standard label which all manufacturers are willing to accept.

Other conferences in turn have considered bed sheets and blankets.<sup>86</sup> In both of these cases technical committees were organized, which, after studying the problem, recommend that labels be put into use giving such construction specifications as size, thread count, tensile strength, weight, and per cent of finishing material in the case of sheets; and size, tensile strength, weight, and fiber content in the case of blankets. While the manufacturing groups have been unwilling so far to accept these recommendations, the work has resulted in the inclusion of construction details on such materials in the catalogs of a few mail order houses. Undoubtedly it is only a matter of time before the outstanding manufacturers will be so labeling their products.

The National Retail Dry Goods Association recently led a movement to have the percentage of weighting given on all invoices of silk goods sold to retailers. This was a reflection of the strong consumer demand for a better quality of silk. The American Home Economics Association took the position that it was even

<sup>85</sup> Pennington, M. E. "Grading refrigerators." *Refrigerating World*, 64 (7):21-22, July, 1929.

<sup>86</sup> A review of chemical, textile, wood and miscellaneous projects. A. S. A. Bulletin no. 61:21-29, May, 1931; p. 23, L-4, *Specifications and standards for sheets and sheeting*; p. 24, L-6, *Specifications for blankets*.

more important that the consumer know the percentage of weighting, and petitioned the American Standards Association to call a conference of distributors, manufacturers and consumers to consider the advisability of getting this information on a label or in some other form accessible to the buyer. Strong opposition was given this by both the manufacturing and distributing groups. In accordance with the policy of the American Standards Association it was therefore given no further consideration by that organization.<sup>87</sup>

In many industries quality grading systems or minimum quality standards exist. Some of these carry through to the retail market;<sup>88</sup> others, while they are known only to the industry concerned and therefore cannot be used by consumers in comparing qualities, do prohibit or discourage the production of grossly inferior merchandise. An interesting example is the grading system now being contemplated by the mohair plush manufacturers. Competition in this field has brought about such a lowering of quality that there is a danger that this fabric will be driven out of use as an upholstery material. The manufacturers are seeking to prevent this by setting up a grading system which can be used by furniture and automobile manufacturers in designating the quality they wish to purchase.

Grading systems are in use in the canning industry. Fruits are usually canned in three grades, known in the trade as Fancy, Choice, and Standard. Vegetable grades are designated as Fancy, Extra-Standard, and Standard. In some instances the cans are labeled with these grade names, but their significance is often unknown to the consumer. One large company canning pineapple has established a special grading system for its product and extensively advertises the meaning of the terms and the basis for the grading.

Unfortunately, almost every system so far established employs a different series of grade names, none of which are self-explanatory or show their position in the series. When beef grades are, in order of decreasing excellence, Prime, Choice, Good, Medium, Common, Cutter, and Low Cutter;<sup>89</sup> when household

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<sup>87</sup> American Home Economics Association. *Summary of the silk weighting controversy*. Washington, D. C., 1929, (mimeographed).

<sup>88</sup> Martino, R. A. "Making standards effective." U. S. Dept. Commerce. *Commercial Standards Monthly*, 7:221-227, Jan., 1931.

<sup>89</sup> Davis, *op. cit.*, p. 8.



brooms are Super grade, Fancy grade, and Service grade;<sup>90</sup> and when French-packed mushrooms are Extra Miniature, Miniature, Sur Extra Petite, Sur Extra, Small Extras or Extra Petite, Extras, First Choice, Choice, Pieces and Stems,<sup>91</sup> and so on *ad infinitum*, it is obvious that no consumer can carry the names in mind, much less their order and meaning.

These different systems of grade names are apparently coming into use because of an inexplicable reluctance on the part of producers and manufacturers to allow any product to be designated to the public as grade 2 or grade B. They prefer to veil this partially by such names as Choice or Extra Standard. The result is a steadily growing confusion which, if not checked, will, with increase in the number of graded commodities, soon develop into chaos.

The use of grades and quality specifications usually, but not necessarily involves labeling of the merchandise, and the added cost to the consumer which might be involved in this has been advanced as an argument against such practices. The force of this contention is weakened, however, by the fact that practically all merchandise does carry some kind of a label now.<sup>92</sup> Often these give merely the name of the manufacturer or the trade-mark, and sometimes a superlative phrase or two. If it is true that they add appreciably to the cost of the item, they are not giving a commensurate return to the consumer and should be eliminated.

An example of this type of labeling is the recently inaugurated plan to introduce labels on fabrics and ready-to-wear dresses stating that the fabric design is an original one.<sup>93</sup> By intensive advertising, it is proposed to direct consumer demand away from garments not so marked. While this movement against the pirating of designs may have much in its favor, the fact remains that the average woman is not at all concerned with whether or not the design she is purchasing is original. The expense involved in getting this information to her might, from her standpoint, be

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<sup>90</sup> National Standards Council, Inc. *Brooms, household and industrial; a standard for consumer guidance established by the Broom Institute, Inc.* New York, [1931].

<sup>91</sup> U. S. Dept. of Agri., Food and Drug Administration. *How to read the label: Canned mushrooms.* Serial no. 38, 1931, (mimeographed).

<sup>92</sup> Edgerton, L. "Let the label carry your message." *Textile World*, 80:312-313, July 25, 1931.

<sup>93</sup> "New association [Design Protection Association, Inc.] leads industry's war on design piracy." *Textile World*, 80(16):1520-1521, Oct. 17, 1931.

better used in giving her pertinent information regarding the wearing quality of the fabric.

In a few instances, factual information is given on the labels carried by merchandise. An illustration is the practice that was introduced soon after the World War of labeling cotton materials color fast. This was a result of the demand for color-fast goods brought on by the use of fugitive colors during the war. The unscrupulous use of such labels was the direct cause of the introduction of the Nafal label originated by those manufacturers who are members of the National Association of Finishers of Cotton Fabrics.<sup>94</sup> This association set up a system whereby goods are submitted by a commercial laboratory to tests approved by the Association and, if satisfactory, are assigned an identifying number which is carried on a tag attached to the bolt of material. This tag also describes briefly the significance of the Nafal label. The system has been of mutual advantage to all concerned and should be more adequately brought to the attention of the public.

Another example is the very recently inaugurated practice of labeling silk materials "pure dye," a term used by some manufacturers to mean no weighting. This was a direct result of the consumer reaction against excessively weighted silk and has done much to direct attention to silks of good quality.

There are sufficient instances of this kind to show that the cost of labeling products with factual information is not prohibitive and is done when the manufacturer is convinced that he can reduce competition thereby.<sup>95</sup> The problem of policing these labels is always a troublesome one. It comes under the jurisdiction of the Federal Trade Commission, but in many cases has been done very successfully by the associations of manufacturers without Governmental assistance.

Closely allied to the use of grades and quality specifications are the so-called certification services, a few of which are now in use. The United States Bureau of Standards has established a "willing-to-certify" system whereby a list is maintained of those manufacturers willing to certify that their products meet the Federal specifications which have been set up by the Government in con-

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<sup>94</sup> Fisher, K. A. "The colors are fast if they carry the Nafal label." *Good Housekeeping*, 87(6):84, Dec., 1928.

<sup>95</sup> Agnew, P. G., and McNair, J. W. *Certification and labeling activities in 60 commodity fields*. A. S. A. Bulletin, 3 (1):1-23, Jan., 1932.

nection with Government purchases.<sup>96</sup> Unfortunately, most of the products now so listed are industrial materials not purchased directly by the ultimate consumer. Then, too, Government specifications are usually written with the specific needs of a Government department in mind, and sometimes cannot meet consumer needs.

This system may prove more valuable from the ultimate consumer's point of view when used in connection with the commercial standards service<sup>97</sup> which is being developed by that bureau. Through this service, industrial groups are encouraged to set up commodity standards covering grade, quality, dimensions or tolerances. These are called Commercial Standards. Upon request, the Bureau will issue lists of manufacturers willing to certify to purchasers that their products comply with the commercial standard established by their industry. Manufacturers are also encouraged to apply self-certifying labels to their products guaranteeing that the quality or measurements conform to these requirements. The Porcelain Plumbing Fixture Manufacturers, the Wallpaper Association of the United States, and the Mirror Manufacturers' Association are some of the organizations which have established such standards. Their products bear certification labels, and in the case of mirrors a grade designation which is of particular value to consumers.<sup>98</sup>

The American Medical Association is issuing a "Seal of Acceptance" which "may be displayed on the container label, in advertising matter or in any form of advertising display related to the product" if the printed material meets the approval of the Committee on Foods which the Association has appointed for this purpose.<sup>99</sup> This service was created to prevent or discourage unwarranted, incorrect or false advertising claims in the promotion of food products. National Standards Council, Inc., a recently organized group, certifies by label that the product so marked adheres to the standard set up by the manufacturer or manufactur-

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<sup>96</sup> McAllister, A. S. "Aid in identifying quality in household commodities." U. S. Dept. Commerce, *Commercial Standards Monthly*, 7:131-132, Nov., 1930.

<sup>97</sup> U. S. Dept. of Commerce, Bureau of Standards. *The Commercial standards service and its value to business*. Commercial Standard CS 0-30, 1930.

<sup>98</sup> U. S. Dept. of Commerce, Bureau of Standards. *Plate glass mirrors*. Commercial Standard, CS 27-30, 1931.

<sup>99</sup> American Medical Association. *Rules and regulations of the Committee on Foods of the American Medical Association*. Chicago, July, 1931, p. 5.



ing association. The standards for brooms recently established by The Broom Institute, Inc., are so certified by this Council.<sup>100</sup>

The possibilities of developing quality specifications or grades for household commodities are deserving of thorough study. Considerable research, and in many cases a changed attitude on the part of both producing and distributing as well as consuming groups, will be necessary before they are satisfactorily established. However, the resultant increased efficiency in family spending will produce an increase in family satisfactions and contentment which will justify the work involved.

## RECOMMENDATIONS

The present lack of facilities by which the household purchaser can make an intelligent selection of commodities on the retail market constitutes a serious deterrent to that practice of wise spending and saving necessary in the average family if adequate housing is to be achieved. The situation is made more serious by the sales pressure which the rapidly growing production in this country has brought upon the consumer in an effort to create larger markets.

On account of the fundamental importance of this problem to home ownership, this committee recommends the following:

1. That the Conference bring to the attention of the manufacturing and distributing groups the importance of improving the means for intelligent retail purchasing as a direct aid to home ownership and better housing in this country.

2. That, wherever practicable, quality specifications\* be set up for consumers' goods, based on a study of the situation as it now exists and the actual needs of the consumer; that these specifications be established and regulated by the industries concerned under some such procedure as that now used for Commercial Standards; and that the essential facts covered by the specifications be given on commodity labels.

3. That, when the nature of the article is such that quality specifications can not be designated on it, a grading system be used and grade designations be given on the labels, the basis for which will be readily ascertainable by the purchaser.

4. That steps be taken to set up a simple standardized nomenclature for grading systems, the terms of which will be self-explanatory and applicable to grades now in use and those developed in the future.

5. That advertising of consumers' goods be patterned more closely after

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<sup>100</sup> National Standards Council, Inc., *op. cit.*

\* Committee not unanimous on this point.

present-day advertising of industrial goods with emphasis given to the dissemination of facts regarding the constituent materials, construction, and performance of the commodity advertised.

6. That the Conference urge retail stores to recognize their responsibility as buyers for the community and base their purchases on specifications and the results of testing laboratories; that this information be made available for the use of their clerks and customers.

7. That consumer education be directed toward teaching the technical information necessary for an adequate understanding of the performance of materials and constructions and their utilitarian and economic value for various household uses; that consumers be encouraged to form organizations in order to initiate and finance impartial laboratory testing of commodities when no other means of obtaining comparative data is available.

## CHAPTER V

# BUDGETING FOR HOUSING AND HOME OWNERSHIP

### INTRODUCTION

One of the most important factors in efficient home management undoubtedly is skill in the use of the family income. Careful planning of expenditures through budgeting in advance of spending, and systematic evaluation of expenditures previously made, contribute toward efficiency in this field of management. From the standpoint of planning for housing, budgeting encourages the formulation of a definite standard of housing which takes its proper place in the expenditure plan, thus lessening the possibility of the family's committing itself to housing that is either inadequate or too elaborate to be a consistent part of the standard of living possible with a given money income. If home ownership is one of the values that is of primary importance (as it is for many families with comparatively stable occupations and incomes), budgeting the income to provide for buying a home will determine the maximum amount of the yearly expenditure which may be apportioned to it, if other values are not to be sacrificed.

In order to determine the character of the existing material dealing with the proportion of the income allotted to current expenditure for housing and household operation and to investment in housing in relation to other uses of the income, an analysis of all the recent studies of urban family incomes and expenditures was undertaken. No studies of rural family living nor of Negro family living are included, since the problems of housing for these groups are being studied by separate committees.

### BUDGET MAKING AND ACCOUNT KEEPING <sup>1</sup>

In the days when the household was largely a productive unit, little money passed through the hands of the housewife. Her task in directing consumption was largely the problem of how to use material at hand. Wise management of income now takes precedence, at least, in many urban families. Progress in con-

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<sup>1</sup> Prepared by Effie I. Raitt, Head, Department of Home Economics, Washington State College, Seattle, Washington.



ducting the affairs of the household requires the development of a new technique to meet the changed conditions.<sup>2</sup>

Budget making and the keeping of records are no less essential in conducting the affairs of the household than in business. "Making money and spending money are strictly correlative arts . . . important as the art of spending is, we have developed less skill in its practice than in the practice of making money. . . . Ignorance of qualities, uncertainty of taste, lack of accounting, carelessness about prices—faults which would ruin a merchant—prevail in our housekeeping."<sup>3</sup>

The function of budget making and account keeping is to secure such information, in an easily usable form, as will be of help in future planning and spending. The sole purpose of budgeting and accounting is the improvement of home management in order that the contentment and well-being of the family may thereby be increased. The time, effort, and mental strain involved in this division of household administration must be reduced to a minimum by making the system as nearly automatic as possible, or the dissatisfactions resulting may outweigh the satisfactions.<sup>4</sup>

The household budget may be made by the family in conference (including all who have a sense of money values),<sup>5</sup> or by one member of the household who may make the estimates and submit them to the remainder of the group. Again, one member may make and enforce the entire budget or one member may make only a partial budget for that portion of the income which goes through his hands.<sup>6</sup> A well-kept account book is a very convinc-

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<sup>2</sup> "The homemakers of the United States as a group manage one of our largest business undertakings and direct the spending of many billions of dollars annually. What can they learn from the business world? How can they improve their business methods? First, and basic to all other improvements, they can make a plan for spending the family income to the best advantage." Woodhouse, C. G. *Planning your family expenditures*. U. S. Dept. Agri., Misc. Circ. 68, 1926, p. 1.

<sup>3</sup> Mitchell, W. C. "The backward art of spending money." *Amer. Econ. Rev.*, 2:269-281, 1912.

<sup>4</sup> "Do not make your recording of expenditures a family nuisance, the main subject of conversation at the evening meal." Woodhouse, *op. cit.*, p. 4.

<sup>5</sup> Fisher, D. C. *Self reliance*. New York, Henry Holt Co., 1929, p. 126.

<sup>6</sup> "First, if you can, get the whole family interested. If, as a group, you make a plan and try to live by it you will be very likely to succeed. However, if some members of the family are not interested, start with a budget for your own clothing, and all the household expenses over which you have control. Later the other members of the family will, no doubt, have to admit that you are doing better with a plan than without one and then will want to join in and make a budget for all of the family expenditures." Woodhouse, *op. cit.*, p. 1-2.

ing argument in support of a budgeting system. Although budget making has certain values in itself apart from account keeping, the latter is necessary in order best to forecast future procedure and to check conformance to the plan.<sup>7</sup>

The necessary equipment, the location of bills and other records, and the time required for budgeting and recording expenditures are all factors to be considered in establishing a system of account keeping.

Simple account forms should be provided to be kept in a desk or table drawer where bills are filed and where writing is ordinarily done. This may be located in the kitchen, living room or bedroom, depending upon the habits of the account keeper. A spindle in the kitchen (preferably attached to the wall) is desirable. Upon this may be placed bills received with material delivered at the kitchen door. A desk spindle convenient to the front of the house for bills received with goods delivered at the front door also is recommended. A pad with pencil attached for memoranda, placed where most convenient for members of the household to record their purchases, will aid in obtaining more complete records. This may be placed on the desk or bedside table.

Fixing a definite time for entering expenditures is essential. The more the work of keeping accounts can be reduced to mechanical procedures the better. Undue conversation on this constantly recurring subject may become exceedingly irritating.

The formation of systematic habits in regard to keeping records is not the least factor in success in financial management. Failure may be like the old jingle:

"For want of a nail the shoe was lost;  
For want of a shoe the horse was lost;  
For want of a horse the kingdom was lost."

If account keeping is to be effective, the expenditures must be classified and summarized so that results may be periodically appraised. The forms in common use ordinarily give directions for recording expenditures. They also provide blanks for recording estimated expenditures, summaries, and inventories. A number

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<sup>7</sup> The advantages of keeping household accounts include: (1) An accurate knowledge of the sources of the family income; (2) a check on wasteful expenditures; (3) an encouragement to form a proper relationship between the various classes of expenditures; (4) an encouragement to save; (5) a protection against paying a bill twice; (6) a settlement of disputes.

of organizations have made available forms for account keeping, recommended divisions of the income, and quantity budgets. The account books available are of two general types: One is columnar with all expenditures for the month recorded on one sheet; the other classifies purchases separately, usually by the use of a separate sheet for each type of expenditure.

The columnar type has the advantage of being simple in form and easily understood. However, in this type of book, the space for recording data regarding purchases is limited and may be separated by the width of a page from the amount expended. Attention tends to be focused upon amounts expended rather than upon services and commodities purchased.

The second type of account book provides a separate column for writing in the description of goods purchased next to the cost figures. This system is flexible as it permits the recording of all the data that may be desired, much or little. Segregation of articles purchased and services rendered according to the division of the budget furnishes a ready means for judging values and provides a basis for forecasting future needs.

### Procedure in Budget Making

Assemble canceled checks, receipted bills, and other pertinent records if accounts have not been previously kept.

Provide blanks for estimating expenditures of commodities and services by months. A detailed classified list of possible expenditures is helpful, if one is available which fits the family situation. Forecast future expenditures based upon past experience, present resources and probable future conditions.<sup>8</sup> Estimates should be based upon minimum expectancy of income. It is an easy matter to revise upward.<sup>9</sup>

A reasonable amount may be entered under miscellaneous as "Unaccounted for" without qualms in regard to inefficiency or discouragement over failure to reach absolute perfection. The budget is made to serve, not to dominate.<sup>10</sup> The time-consuming operation of entering each small separate item should be avoided when the aggregate tells a sufficient story.

The adoption of a simple but adequate system of account keeping, the willingness to face facts, the readiness to take a long view ahead, the develop-

<sup>8</sup> Waite, W. C. *Economics of consumption*. New York, McGraw-Hill Book Co., 1928, p. 154-155.

Woodhouse, C. G. *Planning and recording family expenditures*. U. S. Dept. Agri., Farmers' Bul. no. 1553, 1927.

Lord, I. E. *Getting your money's worth*. New York, Harcourt, Brace & Co., 1922, p. 19.

<sup>9</sup> *Ibid.*, p. 26.

<sup>10</sup> Donham, S. A. *Spending the family income*. Boston, Little, Brown and Co., 1921, p. 89.



ment of ability to forecast, and the fostering of a spirit of cooperation within the family are all elements in establishing the home on a sound business basis and may markedly increase the real income. Estimated expenditures should be followed as long as they conform to the greatest need of the household, but if conditions change or if unwise judgment has been used in formulating plans, these plans should be reexamined and, after due consideration, altered accordingly.

Budget making and account keeping are tools. They should never be regarded as ends in themselves. Therefore only such information as will aid in evaluating use of income should be included in household records.

## AN ANALYSIS OF RECENT URBAN BUDGETS AND STUDIES OF FAMILY LIVING <sup>11</sup>

### Distribution of Urban Population

Urban areas, as defined by the Census Bureau, have included all cities and other incorporated places having 2,500 inhabitants or more. For use in connection with the 1930 census the definition was extended to include townships and other political subdivisions which had a total population of 10,000 or more, and a population density of 1,000 or more per square mile. With this classification of continental areas as the basis for distinction between urban and rural population, the group concerned in the problem of urban housing in 1930 comprised 56.2 per cent of the total population of continental United States, or approximately 69 million people. Slightly more than one-fifth of the urban population, or 12.3 per cent of the entire population of the United States, lived in 5 cities, each with a population of 1,000,000 or more. About one-third of the urban population lived in 88 cities of from 100,000 to 1,000,000 inhabitants; another one-third in 889 cities with a population of from 10,000 to 100,000; and about one-seventh lived in 2,183 cities with a population of from 2,500 to 10,000. Slightly more than half of the entire urban population is centered in cities in the Middle Atlantic States and East North Central States.<sup>12</sup>

The proportion of the population of the United States living in

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<sup>11</sup> Prepared by Faith M. Williams, Bureau of Home Economics, United States Department of Agriculture, and B. Eleanor Johnson, Research Staff, President's Conference on Home Building and Home Ownership.

<sup>12</sup> U. S. Dept. of Commerce, Bureau of the Census. Fifteenth Census of the United States, 1930, *Population Bulletin, First Series, United States Summary*, p. 78-79.

urban territory has increased from 28.6 per cent in 1880 to 56.2 per cent in 1930, the increase in the 10-year period, 1920 to 1930, being from 51.4 per cent to 56.2 per cent.<sup>13</sup> The number of cities of 1,000,000 or more increased from 3 to 5, from 1920 to 1930, and included Los Angeles and Detroit in addition to New York, Chicago, and Philadelphia. The percentage of the total population living in cities of 1,000,000 or more increased from 9.6 in 1920 to 12.3 in 1930. During that same period cities with from 250,000 to 500,000 inhabitants increased in number from 13 to 24 and the percentage of the total population in cities of this size increased from 4.3 per cent to 6.5 per cent. During the depression period of 1930, however, the net gain to cities was considerably less than for 1929, being only 151,000 as compared with 619,000 in 1929.<sup>14</sup>

### Security of Location among Urban Families

Data available show that territorial mobility in the United States is very great. There is a constant shifting of population to and from farms and from one city to another. With reference to its extent and increase Sorokin says:

"If the proportion of people who reside in a definite place but were born in another section of the same country is taken, this proportion shows a steady and systematic increase since the second half of the nineteenth century."<sup>15</sup>

"In the United States, the per cent of the people whose residence at the time of the census was in the same state where they were born is, for 1920, only 67.2 per cent; for . . . 1900 . . . 68.3 per cent."<sup>16</sup>

The extent of this shifting of population is further indicated by the results of Dr. R. D. McKenzie's study of Columbus, Ohio. He found that "in Columbus only 58.6 per cent of the registered electors of 1917 reregistered in 1918, the difference being due principally to the territorial shifting of the electors."<sup>17</sup>

### Distribution of Income in Urban Communities

Approximately 49 million persons 10 years of age and over reported a gainful occupation in April, 1930. Excluding those re-

<sup>13</sup> If the classification of urban territory used in 1920 were to be used in 1930, the figures would show 55.9 per cent of the population living in urban territory in 1930.

<sup>14</sup> Galpin, C. J. "Farm population starts gaining." U. S. Dept. Agri., Bureau of Agricultural Economics, *Agricultural Situation*, 15 (3) :3, 1931.

<sup>15</sup> Sorokin, P. *Social mobility*. New York, Harper & Brothers, 1927, p. 385.

<sup>16</sup> *Ibid.*, p. 383.

<sup>17</sup> *Ibid.*, p. 387.

porting agriculture, forestry and fishing, and extraction of minerals, about 37 million persons reported as their occupations those which are probably carried on in cities.

In his report on the "National Income and its Purchasing Power," King has estimated the average number of wage workers, salaried employees and entrepreneurs in certain urban industries for each year from 1909 to 1927 together with their average earnings. In 1927, approximately 24 million or 66.8 per cent of the 35,641,000 workers attached to these industries were wage earners, 22.9 per cent were salaried employees, and 10.3 per cent were entrepreneurs. The average annual earnings for the wage and salaried workers (90 per cent of the entire group) were less than \$1,500. The range of annual earnings for wage earners, who comprise two-thirds of the group, was from \$1,202 in "unclassified" industries to \$1,645 in "construction."<sup>18</sup> Douglas has estimated the average annual earnings for wage earners attached to the manufacturing and transportation industries for the year 1926 as \$1,302.<sup>19</sup>

The National Bureau of Economic Research estimated that in 1918 about 86 per cent of all persons gainfully employed have incomes of less than \$2,000 per year.<sup>20</sup> No comprehensive data on the distribution of family incomes are available, but Dr. Kyrk, of the University of Chicago, has estimated that approximately 97 per cent of the married men in the United States have incomes under \$5,000.<sup>21</sup> *Table 1* shows that, in all probability, the majority of city families even in prosperous years have less than \$2,500 to spend.

### Security of Income among Urban Families

Among the families of wage and salaried workers the regular earnings of the father constitute a very large proportion of the total income. No comprehensive data are available to show the proportions in families of different types, but an analysis of recent

<sup>18</sup> U. S. Dept. of Commerce, Bureau of the Census. *Fifteenth Census of the United States, 1930, Population Bulletin, Second Series, United States Summary, Composition and characteristics of the population*, p. 22.

<sup>19</sup> Douglas, P. *Real wages in the United States, 1890-1926*. New York, Houghton Mifflin Co., 1930, p. 463.

<sup>20</sup> National Bureau of Economic Research. *Income in the United States, its amount and distribution, 1909-1919*. New York, Harcourt, Brace & Co., 1921, 1:146.

<sup>21</sup> Kyrk, H. *Economic problems of the home*. Chap. VIII, p. 4 (unpublished).



Table 1. Estimated number and average annual earnings of wage workers and salaried employees attached to various industries, primarily urban, 1927\*

Industry	Total number estimated as engaged in these industries†	Wage workers			Salaried employees		
		Number	Per cent of total persons engaged in these industries	Average annual earnings‡	Number	Per cent of total persons engaged in these industries	Average annual earnings
Total.....	Persons 35,641,000	Persons 23,806,000	Per cent 66.8	Dollars 1,268	Persons 8,173,000	Per cent 22.9	Dollars 2,085
Manufacturing.....	10,746,000	9,100,000	84.7	1,216	1,498,000	13.9	2,470
Construction.....	1,753,000	1,421,000	81.1	1,644	142,000	8.1	2,129
Banking.....	292,000	.....	.....	.....	288,000	98.6	2,259
Mercantile.....	6,122,000	3,852,000	62.9	1,262	771,000	12.6	1,844
Government.....	2,819,000	.....	.....	.....	2,819,000	100.0	1,771
Specified phases of transportation§.....	3,310,000	2,540,000	76.7	1,436	763,000	23.1	2,028
Unclassified.....	10,599,000	6,893,000	65.0	1,202	1,892,000	17.9	2,339

\* King, W. I. *The national income and its purchasing power*. New York, National Bureau of Economic Research, Inc., 1930, 56, 60, 62, 146, 147, 158, 159.

† Including entrepreneurs.

‡ Estimate takes account of unemployment.

§ Includes railroads, pullman, express, transportation by water, street railways, private electric light and power, telegraphs and telephones.

studies shows a variation of from 68 per cent among Federal employees in Chicago to 87.9 per cent among street-car employees in San Francisco. The National Bureau of Economic Research estimated that an allowance of 8 per cent for income from sources

Table 2. Sources of family income as shown by specified studies of groups with average family income under \$3,000

Author of study, place and date	Average family income	Occupation of chief breadwinner	Per cent of income from	
			Father's regular earnings	Other sources
Heller Committee, San Francisco, 1924-25*	\$1,886.00	Street-car employees	87.9	12.1
Nienburg, anthracite coal region, 1922-23†	2,111.00	Mine workers	79.8	20.2
Bureau of Labor Statistics, 1928‡				
Baltimore.....	2,337.00	Federal employees	76.9	23.1
Boston.....	2,411.00	(salary under \$2,500)	75.0	25.0
New York.....	2,483.00		73.0	27.0
Chicago.....	2,746.00		68.4	31.6
New Orleans.....	2,194.00		77.7	22.3
New York State Board of Housing, New York City, 1930§	2,621.00	Clothing trades, professional service, building trades, other	86.8	13.2

\* Heller Committee for Research in Social Economics of the University of California. *Spending ways of a semi-skilled group*. Cost of living studies, 4. Univ. of Calif. Pubs. in Econ. 5(5): 295-366, 1931, p. 308.

† Nienburg, B. M. *Cost of living and retail prices in the anthracite region*. In Report of the U. S. Coal Commission. Senate Doc. 195, pt. 2, 1925, p. 581-582.

‡ U. S. Dept. of Labor, Bureau of Labor Statistics. "Cost of living of federal employees in five cities." *Mo. Labor Rev.*, 29(2): p. 319-320.

§ New York State Board of Housing. *Report on the standard of living of 400 families in a model housing project: The Almagamated Housing Corporation*. New York, 1931, p. 38. (Figures on source of income available for 390 families.)

other than earnings was necessary in order to arrive at the total incomes of wage and salaried workers.<sup>22</sup> In his study, "Earnings of Factory Workers," Brissenden estimates that "the total actual per capita earnings of manufacturing wage earners constitute at least 90 per cent of their total incomes."<sup>23</sup>

Since so large a proportion of the total income in urban families comes from the earnings of the father, any loss of work time re-

<sup>22</sup> National Bureau of Economic Research, *op. cit.*, 1:107.

<sup>23</sup> Brissenden, P. F. *Earnings of factory workers, 1899-1927*. U. S. Dept. of Commerce, Census Monograph X. Washington, 1929, p. 7.

sults in a serious reduction in income. Brissenden has estimated that of all wage earners attached to manufacturing industries in 1925, a relatively prosperous year, the ratio of actual to full employment was 0.886, and the earnings per capita were \$1,402 as compared with average full-time earnings which would have been \$1,582.

At all times the earnings of wage earners, and hence their incomes, are extremely variable, but during times of depression they are increasingly so and are often nonexistent for long periods at a time. During the depression in 1921, the ratio of actual to full employment in all manufacturing industries was 0.716, and the estimated actual average earnings per capita were \$1,047 as compared with full-time average earnings which were estimated at \$1,462. In 1922, a slightly more prosperous year, the ratio was 0.822, estimated actual average earnings \$1,171, and full-time average earnings \$1,424.<sup>24</sup> Such reductions in *average* earnings imply, of course, that the earnings of many workers are reduced in times of depression to the point where it becomes necessary for their families to depend on charity for subsistence.

The average index of employment in manufacturing industries for the entire year of 1930 was 83.7, and for the first 10 months of 1931, 72 as compared with 97.5 in 1929 and 100 in 1926. The average index of payroll totals was 80.3 in 1930, and 62.1 for the first 10 months of 1931 as compared with 100.4 in 1929 and 100 in 1926.<sup>25</sup>

### Standard Budgets for Urban Families

When a family has not kept household accounts over a period of time, a standard budget, even though not completely adapted to the needs of the members, will aid them materially in adjusting their purchases to a new expenditure plan.

The need for standard budgets for home purchasing families is acute. Throughout the United States, the housing shortage of 1920 and years immediately following resulted in home purchases by many families who could not afford to own at the prices they paid. Some of them, because of the insecurity of their jobs, could not afford to own at any price. Mrs. Edith Elmer Wood's new book on "Recent Trends in American Housing" quotes some chal-

<sup>24</sup> Brissenden, *op. cit.*, p. 341.

<sup>25</sup> U. S. Dept. of Labor, Bureau of Labor Statistics. "Trend of employment." *Mo. Labor Rev.*, 33(6):1931, p. 1477.



lenging figures on the number of foreclosures which have been suffered in the last ten years.<sup>26</sup> If there had been generally available carefully worked-out budgets to assist these families to compute the cost of the goods and services essential for their type of family living, and to enable them to calculate on a sound basis the amount they could undertake to invest in a house, the situation might have been different.

The United States Bureau of Home Economics has a collection of the so-called standard budgets for urban families in use by various agencies throughout the country. This collection of budgets has been analyzed to ascertain how many provide for the rental of shelter of certain specified types or for home purchase. It was found that very little concrete material on the types of housing available for the rental payments recommended appears in the budgets in current use. Only one budget was found giving detailed figures for all the expenditures of a family purchasing a home on the instalment plan—the plan which must be utilized by most home-purchasing American families. This budget provides for the expenditure of \$6,085 for a family of four in Berkeley, California. It was prepared as a part of a series presenting budgets at three different income levels, by the Heller Committee for Research in Social Economics of the University of California, of which Miss Jessica Peixotto is chairman. The other two budgets prepared by the Heller Committee provide for smaller total expenditures and make no provision for home ownership. Not a few statements were found recommending the amounts which, in the opinion of the authors, might safely be invested in a home by families with certain incomes; but these statements did not include recommendations as to expenditures for the other goods and services necessary for family welfare while the house is being purchased.

The budgets, prepared by social agencies, banks, and other organizations interested in the problems of incomes and expenditures, present the results of investigations to determine the quantities and cost of the goods and services necessary for families varying in size and composition to maintain a given standard of living in a specified locality. The quantity-cost budgets are worked out in much detail, but the summary in *Table 3* presents only the recommended percentage of the income to be apportioned to the

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<sup>26</sup> Wood, E. E. *Recent trends in American housing*. New York, Macmillan Co., 1931, p. 38.

Table 3. Division of income as recommended in commonly used standard budgets

Organization recommending	Annual income	Size family	Per cent of total to be apportioned to					
			Housing	House operation	Food	Clothing	Savings and investments	Miscellaneous
	<i>Dollars</i>	<i>Persons</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Cleveland Associated Charities, 1931.....	1,040	5	25.0	10.0	40.0	15.0	.....	10.0
Oregon Extension Service, 1931.....	1,291	5	18.6	16.8	36.8	12.0	4.0	11.7
Cincinnati League of Women Voters, 1931..	1,525	5	20.8	13.3	42.5	14.1	3.6	5.5
Heller Committee for Research, Calif., 1931..	1,632	5	20.6	12.2	31.1	13.9	18.2	4.0
	2,175	5	18.2	12.1	31.2	15.6	6.0	16.9
Cleveland Society for Savings, 1931*.....	3,600	5	23.3	10.0	20.0	16.7	13.3	16.7
	4,800	5	21.3	12.5	18.7	12.5	16.3	18.7
	6,000	5	20.0	13.0	15.0	12.0	20.0	20.0
Heller Committee for Research, 1931.....	1,498	4	33.8	27.8	30.0	12.9	†	22.2
	1,931	4	27.8		31.8	15.3	†	25.1
Cleveland Society for Savings.....	3,000	4	24.0	10.0	20.0	16.0	16.0	14.0
	3,600	4	23.3	10.0	18.3	15.0	16.7	16.7
	6,085	4	22.7	15.2	14.6	11.1	10.2	26.2
Heller Committee for Research, 1931.....	1,352	3	34.5	28.6	28.6	11.8	†	25.1
	1,737	3	27.7	31.0	31.0	14.5	†	26.8
Cleveland Society for Savings, 1931.....	2,400	3	25.0	9.0	20.0	13.5	17.5	15.0
	3,000	3	24.0	10.0	18.0	14.0	18.0	16.0
	3,600	3	23.3	10.0	16.7	13.3	18.3	18.3
Heller Committee for Research, 1931.....	1,185	2	35.2	27.0	27.0	10.6	†	27.2
	1,551	2	28.2	29.9	29.9	13.3	†	28.6
Cleveland Society for Savings, 1931.....	2,400	2	25.0	9.0	17.5	12.5	20.0	16.0
	3,000	2	24.0	10.0	16.0	12.0	22.0	16.0
	3,600	2	23.3	10.0	13.3	11.7	21.7	20.0

\* The Cleveland Society for Savings includes in its series suggested budgets for incomes of from \$1,800 to \$3,600 for families of 2, 3, 4 and 5, budgets for incomes of \$4,800 to \$9,600 for families of 5, and also budgets for newly married couples and individuals.

† Included in miscellaneous.

‡ Includes investment in home ownership.

major items from certain widely used budgets. An examination of this table shows the need of planning budgets for families of more than five persons.

In general, studies of family expenditures indicate a smaller proportion of the income spent for housing by the higher income groups than that recommended in standard budgets. However, a part of this difference may be due to different interpretations of the term "housing" and hence to a difference in the items included. For example, the Heller Committee recommends an apportionment of 22.7 per cent to housing for the family of 4 with an income of \$6,085. This includes annual payment on the principal of a mortgage on the home. When this item is deducted, approximately 12.7 per cent is the proportion allotted to current housing expenditures, and 10 per cent to investment in housing. Studies of family expenditures also show a lower percentage spent for clothing at all income levels and a higher percentage spent for miscellaneous than that in standard budgets for the same income group and size family.

### **Uses of Income by Urban Families as Shown by Recent Studies of Family Living**

Since only one standard budget was found for a family making monthly payments on its home, and most of the budgets prepared for renting families were very vague about the type of housing which can be supplied with the amount of money specified for rent, an analysis of the studies of urban family living as it has gone on in the United States in recent years was made to discover what material would be available for the use of agencies desiring to make up standard budgets on the basis of the average expenditures of families having procured satisfactory housing.

Four of the available studies showed housing expenditures for renters only, though both home owners and renters were included in the study, and in none of these reports were separate figures given showing the complete distribution of expenditures for the renters. In one study, the expenditures of home-purchasing families were given for all the main items in the budget. In five studies, housing expenditures for renters and home owners were shown separately; in one, housing expenditures for renters, part owners and full owners were shown separately. In none of these studies were the average yearly income, the average yearly expendi-



ture, and the expenditure for all other items of the budget shown separately for home owners and renters.

### Studies from Which Housing Costs for Renters Only Could Be Secured

1. **Yale University Committee on Academic Standards of Living, Incomes and living costs of a university faculty (1927).**<sup>27</sup> From the results presented in this study it was possible to secure definite data on housing expenditures for renters only. *Table 4* shows that the percentage of the families in this professional group living in rented houses has a tendency to decrease as the income increases. Families with children where the father's rank is above that of instructor expend a smaller proportion of their total income for rent than families with no children. For the families with children the proportion decreases from 23.5 per cent for those with a median annual income of about \$3,000 to

**Table 4. Housing situation of married faculty members at Yale University, 1927\***

Rank	Total families reporting	Median income	Living in rented houses	Median annual rent†	Median percentage of total income paid for rent
	<i>Number</i>	<i>Dollars</i>	<i>Per cent</i>	<i>Dollars</i>	<i>Per cent</i>
Instructors:					
With children.....	27	3,050	89	690	23.5
Childless.....	22	2,987	96	660	21.5
Assistant professors:					
With children.....	45	5,050	73	900	19.0
Childless.....	14	4,750	71	870	21.0
Associate professors:					
With children.....	20	6,300	45	1,000	16.0
Childless.....	5	6,200	40	1,100	20.0
Full professors:					
With children.....	46	9,200	26	1,110	14.0
Childless.....	12	10,300	50	1,680	21.5

\* Henderson and Davie, *op. cit.*, p. 44, 72.

† Includes water and repairs.

<sup>27</sup> Henderson, Y., and Davie, M. R. *Incomes and living costs of a university faculty*. New Haven, Yale Univ. Press, 1928.

14 per cent for families with a median annual income of about \$9,200. The proportion allotted to housing by married faculty members with no children varies from 20 to 21.5 per cent, regardless of the size of the income. The number reporting in the two highest-income groups was so small that the percentages can hardly be considered representative.

The report states that the faculty are "generally economizing in their general expenses in order to live in residences better than they can well afford."<sup>28</sup>

With reference to home ownership, the results show that the proportion living in houses which they own or are buying increases with increase in income, as does the sale value of the house. The relation of the total income to the value of the residence tends to approximate the ratio of one to two. For all the married faculty members replying to the questionnaire who owned their homes, the total income is 47 per cent of the sale value of their residences.

**2. Leila Houghteling, The income and standard of living of unskilled laborers in Chicago (1924).** Of the 467 families included in this study 337 rented their homes. The average amount paid for rent by the 301 families for whom data on rent paid and size of family were presented, was \$283, or 15 per cent of the family fund. With reference to this the author says, "While these rents may seem on the whole to be low, it should be remembered that more than half of the families were living in old apartments of less than five rooms."<sup>29</sup>

The effect of increase in size of family upon expenditures for housing at a given income level is not systematically presented in any recent study. The income range in this study is so limited, however, that it is interesting to note that the percentage of the total family fund allotted to rent declines from 17.1 per cent for families of three to 12.9 per cent for families of seven while the family fund increases from \$1,607 to \$2,063.

This study shows that when the effect of increase in size of family is not taken into consideration, the proportion of the family fund allotted by this group to rent decreases as the income increases. Families with incomes of less than \$1,200 apportioned

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<sup>28</sup> *Ibid.*, p. 75.

<sup>29</sup> Houghteling, L. *The income and standard of living of unskilled laborers in Chicago (1927)*, p. 111-120. (Reprinted by permission of The University of Chicago Press.)

20 per cent of their income to rent, those with incomes of \$1,600 to \$1,799 apportioned 15 per cent, and those with incomes of \$2,400 and over apportioned 11 per cent to rent. Complete figures on the apportionment of incomes are not presented in this study.

Of the total number of families included in this study, 145 or 31.1 per cent reported savings. Approximately half of these had saved less than \$100 during the year. How many of these families with savings were home owners and how many were renters is not shown.

**Table 5. Average amount paid for and average percentage of family fund assigned to rent by families of unskilled and semi-skilled Chicago laborers of specified size, 1924\***

Number of persons in family	Number of families	Average rent	Average family fund	Average percentage of family fund paid for rent
Total.....	301	<i>Dollars</i> 283.35	<i>Dollars</i> 1,851.96	<i>Per cent</i> 15.3
3.....	47	275	1,607	17.1
4.....	64	286	1,807	15.8
5.....	66	281	1,736	16.2
6.....	40	276	1,904	14.5
7.....	33	266	2,063	12.9
8.....	24	287	2,092	13.7
9 or more.....	27	327	2,124	15.4

\* Houghteling, L. *The income and standard of living of unskilled laborers in Chicago (1927)*, p. 115. (Reprinted by permission of the University of Chicago Press.)

3. Bertha M. Nienburg, *Cost of living and retail prices in the anthracite region (1922-23)*.<sup>80</sup> In the results of her study with mine workers' families, Miss Nienburg presents separate expenditure data for families living in communities having a population of more than 2,500 persons.

The 423 families living in cities of 2,500 and over, reporting expenditure for rent, spent an average of \$162.12 a year or 7.4

<sup>80</sup> Nienburg, B. M. *Cost of living and retail prices in the anthracite region*. In Report of the U. S. Coal Commission. Senate Doc. 195, pt. 2, 1925, p. 573-601.



per cent of the average yearly expenditure. The percentage of the total expenditure apportioned to rent decreased from 13.2 for families with incomes of less than \$1,200 a year to 4.3 for families with incomes of \$2,400 and over.<sup>31</sup> The average monthly rental paid varied with the size of the city in which the families lived. In cities of 50,000 and over the average was \$14.72 as compared with \$14.39 in cities of 10,000 to 50,000, and \$11.36 in cities of 2,500 to 10,000. In all probability these families did not live in company-owned houses since, of the entire number of anthracite mine workers included in the survey of the United States Coal Commission, less than 10 per cent did so. In referring to the figures quoted above, Miss Nienburg says:

"More persons, not living in company houses, in Scranton and in towns of 2,500 to 10,000 population paid \$10 and \$12 rent than any other amounts. In cities of 10,000 to 50,000, \$15 was the prevailing rental. The rental for company-owned houses was always less. For the families included in this study it was \$5.57."

She reports that it was difficult to make a comparative study of rentals because so much depended upon the location of the house and its state of repair. The report says:

"The prevailing two-story frame detached house of five or six rooms with running water in the kitchen and electricity rents for \$20 if favorably located and in good repair, whereas a house of the same description rents for \$10 if located on the flats. A bathroom adds approximately \$5 to the rental price of the house. If such houses were obtainable, the rental cost of houses to miners in towns of 10,000 and over would approximate \$20 per month. In towns of less than 10,000 it would approximate \$16 per month. As a matter of fact, bathrooms are the exception rather than the rule in miners' homes in the anthracite region."<sup>32</sup>

*Table 6* shows the distribution of the families studied in the anthracite region according to monthly rental paid. The number of families paying enough rent to procure a house in a favorable location, in good repair and equipped with running water and a bathroom, is very small indeed.

The report states that neat and well-cared-for homes were the rule.

"Always there were white curtains. Repeatedly women were papering or had finished papering the rooms in the house. . . . In this region it is the

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<sup>31</sup> *Ibid.*, p. 584-585.

<sup>32</sup> *Ibid.*, p. 595-596.

Table 6. Percentage of total number of anthracite mine workers paying specified monthly rentals,  
1922-23 \*

Cities grouped according to population	Average monthly rental	Per cent paying monthly rental of								Total families renting	
		Under \$5.00	\$5.00 to \$7.49	\$7.50 to \$9.99	\$10.00 to \$12.49	\$12.50 to \$14.99	\$15.00 to \$19.99	\$20.00 to \$24.99	\$25.00 and over	Number	Per cent
All cities.....	\$11.07	9.5	24.1	12.3	18.2	9.5	16.6	5.7	4.1	610	100
Cities of 50,000 and over.....	14.72	.....	0.8	9.6	30.4	18.3	23.5	11.3	6.1	115	100
Cities of 10,000 to 50,000.....	14.39	2.9	4.1	14.5	18.6	16.3	26.1	7.0	10.5	172	100
Cities of 2,500 to 10,000.....	11.36	5.9	8.8	17.6	32.4	6.6	21.3	7.4	.....	136	100
Communities under 2,500.....	5.57	24.1	67.9	8.0	.....	.....	.....	.....	.....	187	100

\* Nienburg, *op. cit.*, p. 596.

ambition of thrifty families of all races to own their own homes. This ambition is aided and abetted by the existing housing shortage. Fear of increased rentals or fear of being asked to move when there are no vacant houses to move into is causing some families to buy houses instead of paying grocery bills.”<sup>33</sup>

The data collected show that home ownership is attempted among miners' families with incomes of less than \$100 per month.

**4. Bureau of Business Research, University of Pittsburgh, Housing problems of salaried workers employed in down-town Pittsburgh.**<sup>34</sup> Preliminary tabulations of data, secured by the Bureau of Business Research in a study to determine facts concerning the housing situation of salaried persons employed in down-town Pittsburgh, show the proportion of the income allotted to rent by families at different income levels, and the cost and rental value of owned homes. The items included in the term “rent” in the published preliminary report varied considerably. For 21 per cent of the families reporting, payment for garage was included; for 32 per cent, heat was included. Other items as gas, electricity, refrigeration, water, and household service were also included in the rentals paid by many families. The average monthly “rental” paid by 629 families was \$58 or 21.7 per cent of the average income of \$3,210.<sup>35</sup> In subsequent tabulations of reports from a larger number of families, the rentals have been adjusted to more nearly represent the cost of shelter.

The results as presented in *Table 7* show an adjusted average monthly rental for the 789 renting families of \$53 or 19.1 per cent of the average income of \$3,332. The amount expended for rent increased from \$32 a month for 5 families with an average annual income of \$718, to \$114 a month for 11 families with an average annual income of \$17,634, except that the adjusted rental for a small group with an average income of \$8,418 was only \$2 more than that for the group with an average income of \$3,601. The percentage of the income spent for shelter decreased from 53.5 per cent of the average annual income of \$718 to 7.8 per cent of an average annual income of \$17,634. All of the families with incomes of \$4,400 and over spent less than 20 per cent for shelter.

<sup>33</sup> *Ibid.*, p. 594-595.

<sup>34</sup> *Pittsburgh Business Review*, 1(4):12-16, 1931.

<sup>35</sup> *Ibid.*, p. 15.



**Table 7. Average rent expressed in dollars and as a percentage of income for various family income groups: Salaried workers employed in down-town Pittsburgh, 1930\***

Family income groups	Number of cases	Average family income	Unadjusted average rent (monthly)	Adjusted average† rent (monthly)	Adjusted rent percentage of income
		<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Per cent</i>
Less than \$1,000 annually.....	5	718	34	32	53.5
\$ 1,000-\$1,499.....	25	1,323	33	31	28.1
1,500- 1,999.....	91	1,757	38	35	23.9
2,000- 2,299.....	95	2,142	45	42	23.5
2,300- 2,599.....	98	2,426	49	45	22.3
2,600- 2,899.....	65	2,733	55	51	22.4
2,900- 3,199.....	88	3,011	57	52	20.7
3,200- 3,499.....	57	3,309	64	59	21.4
3,500- 3,799.....	59	3,601	65	60	20.0
3,800- 4,099.....	55	3,951	68	64	19.4
4,100- 4,399.....	24	4,208	76	70	20.0
4,400- 4,699.....	30	4,508	77	69	18.4
4,700- 4,999.....	14	4,823	83	76	18.9
5,000- 5,999.....	42	5,258	83	75	17.1
6,000- 6,999.....	17	6,272	90	82	15.7
7,000- 7,999.....	6	7,383	101	95	15.4
8,000- 8,999.....	5	8,418	65	62	8.8
9,000- 9,999.....	2	9,300	109	99	12.8
10,000 and over....	11	17,634	121	114	7.8
All groups.....	789	3,332	58	53	19.1
Income not reported.	36	.....	59	54	.....
Groups under \$10,000	778	3,130	58	53	20.3

\* Table furnished directly by T. A. Veenstra, Statistician, Bureau of Business Research, University of Pittsburgh.

† Three dollars were deducted from the rent of those reporting gas furnished by the landlord, \$3 for electricity, \$5 for refrigeration, \$10 for household service, \$8 for garage, \$5 for furniture, and \$3 for heat.

Table 8 shows the trends among home owners. The average equivalent monthly rent increased with increase in income, but the increase was not as regular as the increase in rentals paid by renting families. The average equivalent monthly rent for the 563 home-owning families was computed as \$94 or 27.1 per cent

of the average income. No family with an annual income of less than \$1,000, and only 2 families with incomes less than \$1,500, reported home ownership among this group of salaried workers in Pittsburgh. The ratio of equivalent monthly rent to family income decreased from 43.3 per cent for 2 families with incomes of less than \$1,500 to 11.1 per cent for 10 families with incomes ranging from \$8,000 to \$8,999. The latter group is the only one in which the ratio is less than 20 per cent. More than half of these 563 families appear in groups in which the ratio of average equivalent rent is from 25 to 34 per cent of the average income. Unfortunately no figures on size of family are yet available for those two Pittsburgh groups.

**Table 8. Average cost of home, first and second mortgages, and equivalent rent expressed in dollars and as a percentage of income: salaried workers employed in down-town Pittsburgh, 1930\***

Family income groups	Number of cases	Average family income	Average cost of homes	Average first mortgage	Average second mortgage	Equivalent rent† monthly	Equivalent rent per cent of income
		Dollars	Dollars	Dollars	Dollars	Dollars	Per cent
Less than \$1,000 annually.....							
\$ 1,000-\$1,499...	2	1,150	4,150	2,150	.....	42	43.3
1 500- 1,999...	21	1,759	5,927	3,000	11	59	40.4
2,000- 2,299...	37	2,136	7,152	2,793	394	72	40.2
2,300- 2,599...	57	2,419	6,886	2,508	177	69	34.2
2,600- 2,899...	47	2,747	7,735	3,440	396	77	33.8
2,900- 3,199...	53	3,013	8,677	3,579	208	87	34.6
3,200- 3,499...	42	3,305	7,349	3,058	87	73	26.7
3,500- 3,799...	58	3,599	8,431	3,672	130	84	28.1
3,800- 4,099...	42	3,949	10,568	4,495	376	106	32.1
4,100- 4,399...	33	4,229	8,724	3,118	155	87	24.8
4,400- 4,699...	30	4,499	9,418	3,479	17	94	25.1
4,700- 4,999...	17	4,819	10,279	4,729	521	103	25.6
5,000- 5,999...	52	5,272	9,531	3,522	179	95	21.7
6,000- 6,999...	27	6,167	11,528	4,585	215	115	22.4
7,000- 7,999...	9	7,366	17,243	8,886	.....	172	28.1
8,000- 8,999...	10	8,120	7,506	1,250	.....	75	11.1
9,000- 9,999...	3	9,163	15,933	5,233	.....	159	20.9
10,000 and over...	23	14,701	26,081	6,162	143	261	21.3
All groups.....	563	4,151	9,387	3,623	212	94	27.1
Income not reported.....	28	.....	8,218	2,799	292	82	.....
Groups under \$10,000.....	540	3,701	8,676	3,515	215	87	28.1

\* Table furnished directly by T. A. Veenstra, Statistician, Bureau of Business Research, University of Pittsburgh.

† Twelve per cent of cost annually, or 1 per cent of cost monthly.

## Studies in Which Renters and Owners Are Shown Separately, but Part Owners and Full Owners Are Not Distinguished

1. United States Bureau of Labor Statistics, *Standard of living of employees of Ford Motor Company in Detroit (1929)*.<sup>36</sup> In this study, the Bureau secured detailed information regarding the living conditions and expenses of 100 Ford Motor Company employees in Detroit who had no appreciable income other than the company's minimum wage of \$7 a day on which to maintain a family. The families chosen consisted of a husband, wife, and 2 or 3 children under 16 years of age. They had no other person living in the family.

Of the 100 families studied, 68 per cent were renting the homes in which they lived and 32 per cent were purchasing their homes. Of those who lived in rented dwellings over two-fifths were living in one-family houses, about half in flats,<sup>37</sup> and 7 in apartments. Separate figures are not given for the average expenditures of families enjoying housing of different types. Using the average expenditures of all families as a base, the families living in apartments are found to allot 24.7 per cent of their expenditures to rent<sup>38</sup> as compared with 22.9 per cent by families who lived in houses, and 22.2 per cent by those living in flats. The average amount paid by all renters comprised 22.8 per cent of the total expenditure.

The housing costs for families purchasing their homes included payment on principal, interest, taxes, special assessments, repairs and improvements, water rent, and insurance.<sup>39</sup> Deducting the \$233.90 which was paid on the principal and which should be regarded as "investment in housing," \$278.20 was allotted to current housing expenses—a sum considerably less than that expended by renters. The average rental value of the owned homes was \$375.31, slightly less than the average rental paid by renters.

<sup>36</sup> U. S. Dept. of Labor, Bureau of Labor Statistics. "Standard of living of employees of Ford Motor Co. in Detroit." *Mo. Labor Rev.*, 30 (6) : 1209-1252, 1930.

<sup>37</sup> A flat is defined as a building in which each family occupies one whole floor.

<sup>38</sup> No services were included in the apartment rentals.

<sup>39</sup> U. S. Dept. of Labor, Bureau of Labor Statistics. "Standard of living of employees of Ford Motor Co. in Detroit," *op. cit.*, p. 1237.



**Table 9. Number of families of Ford employees in Detroit living in rented dwellings with specified number of rooms, and average annual rent, 1929 \***

Item	Total	Type of dwelling		
		House	Flat	Apartment
Number of families.....	68	29	32	7
Average number of persons per family.....	4.5	4.6	4.4	4.4
Average rooms per family.....	4.6	4.7	4.6	4.1
Number of families occupying dwellings having:				
Less than 3 rooms.....	1	.....	.....	1
3 rooms.....	4	2	2	.....
4 rooms.....	26	9	14	3
5 rooms.....	29	15	11	3
6 rooms.....	8	3	5	.....
Bathroom.....	52	19	26	7
Inside water closet.....	60	23	30	7
Average number of rooms equipped for heating.....	3.5	3.1	3.8	3.9
Average rent per year:				
Per dwelling.....	\$391.47	\$394.03	\$381.64	\$425.76
Per room.....	85.59	84.64	83.08	102.77
Per person.....	87.57	86.57	86.61	96.14

\* U. S. Dept of Labor, Bureau of Labor Statistics. "Standard of living of employees of Ford Motor Co. in Detroit," *op. cit.*, p. 1236.

In the summary of the expenditures of these families <sup>40</sup> presented in this report, "rent" includes the amount paid by renters and the rental value of the homes owned. The average for the 100 families was \$389 or 22.6 per cent of the "total expenditures." How renters living in apartments adjusted their expenditures to permit \$425.76 to be allotted to housing and how home owners adjusted theirs to apportion \$278 to current housing expenses and \$234 to investment in housing can only be conjectured, since the data have not been analyzed to show separately distribution of expenditures for families owning and renting.

**2. United States Bureau of Labor Statistics, Cost of living of 506 families of Federal employees in five cities (1928).<sup>41</sup>**

<sup>40</sup> See Table 16, p. 141.

<sup>41</sup> U. S. Dept. of Labor, Bureau of Labor Statistics. "Cost of living of Federal employees in five cities." *Mo. Labor Rev.*, 29(2):315-335.

The families included in this study were families of Federal employees having a salary of not more than \$2,500 a year, consisting of a husband, a wife, and at least one dependent, and living in Baltimore, Boston, Chicago, New York and New Orleans.

Income from sources other than government salary increased the average family income to \$2,194 per year for families living in New Orleans and to \$2,746 for Chicago families. Average annual expenditures ranged from \$2,280 in New Orleans to \$2,928 in Chicago. Both home owners and renters were included in the group studied. The average housing costs for the group were computed from rentals for families renting and rental values for families owning homes. On this basis, the percentage of the annual expenditure allotted to housing ranged from 16 per cent for families in New Orleans to 22 per cent for families in Baltimore. In these two groups the proportion allotted to operating expenses<sup>42</sup> and to savings was approximately the same, being 13 per cent for operating and 6 per cent for savings. That for clothing was only slightly different, 11 per cent for New Orleans families and 12 per cent for Baltimore families. The proportions allotted to food and miscellaneous items, however, was less for Baltimore families than for New Orleans families; that allotted to food being 29 per cent and that allotted to miscellaneous items 14 per cent as compared with 34 per cent apportioned to food by New Orleans families and 17 per cent to miscellaneous items. The average size of family was almost exactly the same in the two cities, but the average family expenses were higher in Baltimore than in New Orleans by \$155. Fifty-nine per cent of the Baltimore families studied, owned their homes, whereas only 30 per cent of the New Orleans families did so. The average rental value assigned to owned homes was \$179 greater in Baltimore than in New Orleans.

Comparing the expenditures in all five cities, the same general practice is apparent. The proportion allotted to operating, clothing, and savings varies little, and differences in amounts apportioned to housing are accompanied by changes in the proportion of the total expenditure allotted to food and to miscellaneous items.

Since 95 per cent of the 101 families studied in New York lived in rented homes, the division of the income among the items of the budget given for New York may be considered fairly representa-

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<sup>42</sup> Includes expenditures for heating and lighting, telephone, laundry, household incidentals, service, furniture and furnishings.

tive of the way in which families of four with an average income of about \$2,500 a year living in rented homes might budget the income in a metropolitan area.

Table 10 shows the average yearly amounts paid by renters and home owners in the different cities. The payment on homes owned probably includes payment on principal, but the amounts for interest and for principal are not shown as they are in the study of Ford employees. Unfortunately average annual expenditure for all goods and services for renters and for home owners is not shown

**Table 10. Average yearly payment for rent and for homes owned by Federal workers in five cities, 1928 \***

City	Population 1930†	Average annual expenditure of both renting and home owning families	Families renting		Home owners	
			Number	Average yearly rental	Number	Average yearly payment
	<i>Persons</i>	<i>Dollars</i>		<i>Dollars</i>		<i>Dollars</i>
New Orleans.....	458,762	2,280	73	324	32	768
Baltimore.....	804,874	2,435	39	422	57	608
Boston.....	781,188	2,498	67	461	35	830
New York.....	6,930,446	2,598	98	471	5	718
Chicago.....	3,376,438	2,928	69	576	33	838

\* U. S. Dept. of Labor, Bureau of Labor Statistics. "Cost of living of Federal employees," *op cit.*, p. 329-330, 332.

† U. S. Dept. of Commerce, Bureau of the Census, Fifteenth Census of the United States, 1930, Population Bulletin, First Series, United States Summary, p. 34.

separately, so the proportion allotted to rent and home ownership can not be figured.

In all of the cities studied, except New York and Boston, a small proportion of the families in the lowest income group owned their own homes.

Average family expenditures for the lowest expenditure groups among the families of the Federal employees studied in these five cities ranged from \$1,525 in New Orleans to \$2,057 in New York.

3. Carle C. Zimmerman, *Incomes and expenditures of Minnesota farm and city families (1927-28)*.<sup>43</sup> From Zimmerman's study it is possible to secure figures on housing, household operation, and investment in housing for both renters and home owners. The results shown for city families are based on data from 252 families, living in two cities, one with a population

<sup>43</sup> Zimmerman, C. C. *Incomes and expenditures of Minnesota farm and city families, 1927-28*. Minn. Agri. Expt. Sta. Bul. 255, 1929.



Table 11. Number of owners and renters by salary groups: Federal employees in five cities\*

Salary group	Baltimore			New Orleans			Boston			New York			Chicago		
	Family income	Own-ers	Rent-ers	Family income	Own-ers	Rent-ers	Family income	Own-ers	Rent-ers	Family income	Own-ers	Rent-ers	Family income	Own-ers	Rent-ers
All groups.....	Dollars 2,337	Num-ber 57	Num-ber 39	Dollars 2,194	Num-ber 32	Num-ber 73	Dollars 2,411	Num-ber 35	Num-ber 67	Dollars 2,483	Num-ber 5	Num-ber 96	Dollars 2,746	Num-ber 33	Num-ber 69
Under \$1,200.....	1,483	2	8	1,517	2	10	1,723	.....	2	2,066	.....	4	2,283	2	2
\$1,200-\$1,499.....	1,597	6	7	1,744	6	16	2,002	5	17	1,850	.....	15	2,029	1	11
1,500-1,799.....	2,203	8	11	2,064	7	17	2,250	5	17	2,435	.....	25	2,610	7	10
1,800-2,099.....	2,434	17	8	2,455	6	17	2,478	11	18	2,588	1	32	2,821	14	25
2,100-2,399.....	3,031	19	3	2,831	9	9	2,745	9	8	2,709	1	13	2,940	3	11
2,400-2,500.....	2,764	5	2	2,804	2	4	3,045	5	5	3,059	3	7	3,191	6	10

\* U. S. Dept. of Labor, Bureau of Labor Statistics, "Cost of living of Federal employees in five cities," *op. cit.*, 319-320, 329-330.

of about 15,000 and the other with a population of about 50,000. Of this group, 119 were renters and 133 were home owners. *Table 12* shows the number of renters and home owners in each income group, and the average amounts expended for housing. In this report, interest on mortgages on owned homes is included with "interest and taxes on investment," and can not be computed from the published data. If the average expenditures of 111 renting families with incomes less than \$6,000 are computed on the basis of average expenditures of both home-owning and renting families in the income groups below \$6,000, the average rental paid is found to be 15.5 per cent of income. This percentage is slightly lower than the average found in other recent studies, excepting that made in the anthracite territory. The difference is probably accounted for by the fact that the cities in question were both small and land values presumably were low.

The figures on investment in home ownership show much irregularity; the average investment in home ownership of families with incomes from \$1,000 to \$1,999 and from \$2,000 to \$2,999 was greater than that of the families in all the other income groups except the highest. The difference is apparently due to the fact that a large proportion of the families with incomes from \$3,000 to \$5,999 owned their homes clear. No figures are available showing the number of homes owned clear by the families included in this investigation.<sup>44</sup>

Even in the lowest-income group (less than \$1,000) a small proportion of the income was allotted to savings and investments. This proportion increased from 3.6 per cent for those with incomes of less than \$1,000 to 56.7 per cent for those with incomes of \$6,000 or more.<sup>45</sup>

*Table 12*, which lists the average amounts spent for items of household operation by renters and home owners, shows that home owners having incomes under \$3,000 spent less for household operation than renters, while those with incomes above \$3,000 spent more than renters. Home owners as a whole spent an average of \$427 for household operation, or 10.8 per cent of the total expense, whereas renters spent an average of \$307, or 7.8 per cent of the total expense. No data have been included which make it

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<sup>44</sup> Zimmerman, *op. cit.*, p. 26-7.

<sup>45</sup> *Ibid.*, p. 24.

possible to determine how the expenditures for operation vary in homes of different types.

4. **Jessica B. Peixotto, *Getting and spending at the professional standard of living* (1922).**<sup>46</sup> The results of this study were based on income and expenditure data secured from 96 faculty families of the University of California. The average size of these families was 3.5 persons and the annual expenditure ranged from \$2,000 to \$6,000 and over per year, the average for the entire group being \$5,512.

About two-thirds of the group studied, owned their homes and one-third lived in rented homes. No family spending under \$3,000 owned a home, whereas 80 per cent of the families studied who spent \$4,000 or more were home owners.<sup>47</sup> The average amount spent for housing by the entire group was \$871 or 17 per cent of the average yearly expenditure. About two-thirds of the group spent less than 20 per cent for housing and slightly less than one-fourth spent less than 10 per cent.<sup>48</sup> The proportion spent for housing at different income levels varied greatly. It tended to increase until the income reached \$7,000 and then dropped irregularly. The variation may probably be explained in part, by the fact that housing costs for more than half of the home owners included payments on principal, and by the fact that about one-third of the homes were apparently owned clear.<sup>49</sup> The small number of families included in some of the income groups may also be a contributing factor.

5. **R. S. and H. M. Lynd, *Middletown* (1924).**<sup>50</sup> The 100 working class families for whom expenditure data for this study were secured lived in a middle western city of about 38,000 inhabitants in 1924. The earned income of these families ranged from \$345 a year to \$3,460 a year, the median for the group being \$1,495. The average rental paid by the families reporting on this item was \$237 or 15.8 per cent of the median earned income of the group. Forty-seven families reported investment in housing in the year of the investigation. This included "purchase, interest

<sup>46</sup> Peixotto, J. B. *Getting and spending at the professional standard of living*. New York, Macmillan Co., 1927.

<sup>47</sup> *Ibid.*, p. 163.

<sup>48</sup> *Ibid.*, p. 166.

<sup>49</sup> *Ibid.*, p. 165.

<sup>50</sup> Lynd, R. S. and H. M. *Middletown; a study in contemporary American culture*. New York, Harcourt, Brace and Co., 1929, p. 514-517.



Table 12. Average annual expenditure per family for housing and household operation for home owners and renters in specified income groups: two Minnesota cities, 1927-28\*

Income group	Average total ex- penses all families	Number of families		Average expenditure for housing		Average expenditure for operating§		Average expendi- tures for light and fuel	
		Owners	Renters	Owners†	Renters‡	Owners	Renters	Owners	Renters
All groups.....	Dollars	Number	Number	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Less than \$1,000.....	3,943	133	119	318	394	427	307	203	155
\$1,000-\$1,999.....	995	9	8	69	173	100	142	79	96
2,000-2,999.....	1,617	33	42	182	292	215	227	149	116
3,000-3,999.....	2,544	29	35	183	415	275	320	196	156
4,000-4,999.....	3,341	13	14	199	523	346	305	207	199
5,000-5,999.....	4,349	14	6	304	545	523	460	236	256
6,000 and over.....	5,262	9	6	264	529	513	456	231	179
	12,835	26	8	815	619	932	611	295	248

Table 12.—Continued

Income group	Average expenditures for									
	Furniture and furnishings†		Music		Telephone		Domestic help		Other operating	
	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All groups.....	126	102	33	16	28	18	36	11	1	5
Less than \$1,000....	14	36	0	2	7	8	0	0	0	0
\$1,000-\$1,999.....	48	86	**	13	18	8	0	1	0	3
2,000-2,999.....	46	107	4	27	26	20	2	3	1	7
3,000-3,999.....	60	71	26	1	27	23	26	9	0	2
4,000-4,999.....	207	114	22	14	33	40	16	33	9	3
5,000-5,999.....	126	159	55	42	34	29	67	24	0	23
6,000 and over....	340	246	118	0	45	31	134	86	0	0

\* Zimmerman, *op. cit.*, p. 30, 31, 32.

† Includes insurance, taxes on homes and personal goods, repairs and alterations.

‡ Includes rent, insurance, taxes on homes and personal goods, repairs and alterations.

§ Includes light, fuel, furniture, furnishings, music other than music lessons, telephone, domestic help, and other.

¶ Furniture, furnishings, lawn equipment, table ware, labor-saving equipment, soap and water.

|| Other than music lessons.

\*\* Less than fifty cents.

on mortgage, and major repairs and alterations, but not taxes or insurance." The average yearly investment was \$378 or 25 per cent of the earned income. The absolute amount spent for rent increased with increased income as did the amount spent for home ownership.<sup>51</sup>

### A Study Which Distinguishes Renters, Part Owners and Full Owners

Heller Committee for Research in Social Economics of the University of California, Spending ways of a semi-skilled group (1924-25); a study of the incomes and expenditures of ninety-eight street-car men's families in San Francisco East Bay region.<sup>52</sup> The yearly incomes of the street-car men's families studied, ranged from \$1,008 to \$3,531, the average being \$1,886. The income of slightly more than three-fourths of the group was less than \$2,000. The average expenditure for the entire group, however, was \$2,109.

Of the 86 families whose housing situation remained unchanged throughout the year, 46 rented and 40 owned their homes. Of the 40 home-owning families, 15 owned their homes clear and 25 were still making payments on them. Sixty per cent of the tenants spent between \$250 and \$350 a year for housing. No tenant spent less than \$18 a month or more than \$45. Between 9.8 per cent and 26.8 per cent of the total expenditures of renters was used to provide shelter. More than three-fourths of the renters spent less than 20 per cent of their total expenditure for rent, and about one-fourth spent less than 15 per cent.

The range of expenditures for housing by owners was from \$6 to \$67 a month or from 3.5 per cent of the total expenditure to 36.7 per cent. About half of the owners spent less than 15 per cent. The average amount spent by all families was 17.3 per cent, and that spent by owners 17.4 per cent. Seventeen of the 40 owners allotted more than 20 per cent of their total expenditures to housing, because they were making repairs or making payments on mortgages. Average expenditures of those owning homes clear and those owners whose homes were mortgaged are not given separately. If the average expenditure for all home owners is used as a base, it is found that families who owned their homes clear

<sup>51</sup> *Ibid.*, Table VI, p. 514-517.

<sup>52</sup> Heller Committee, *op. cit.*, p. 295-366.



spent only 12.3 per cent of total expenditures for housing as compared with the 20.4 per cent spent by those who were still making payments on their homes. The purchase price of the houses owned was usually about \$3,400.<sup>53</sup>

The report states that housing conditions on the whole were good. All but one-sixth of the families lived in separate dwellings, two-thirds of them met or exceeded the standard requirement of one room per person, and 97 of the 98 families had modern bathrooms.<sup>54</sup>

The average expenditure for house operation was 10.4 per cent. This included 3.5 per cent spent for furnishings and furniture and 3.6 per cent for light and fuel. Expenditures for other items of house operation were of minor significance.

All but three of the car men reported some kind of investment or savings. The smallest amount reported was \$9 and the largest \$1,050. The latter was reported by a family of three with a total income of \$2,900. The average for all families studied was \$114 or 5.2 per cent of total expenditures.<sup>55</sup> The authors report that the "average" family had enough to eat and was comfortably housed, but, on the other hand, the income was not sufficient to provide against death and old age, or to pay for adequate medical care.

### A Study Which Is Restricted to Home-Purchasing Families

New York State Board of Housing, *The standard of living of 400 families in a model housing project: The Amalgamated Housing Corporation. New York City (1930).*<sup>56</sup> This study is unique in that it is restricted to a homogeneous group of home-purchasing families living under definitely defined housing conditions. The 400 families studied lived in apartments built by the Amalgamated Housing Corporation in the Bronx, New York City. These apartments were the first to be constructed under the State Housing Law passed in 1926, the primary objec-

<sup>53</sup> Heller Committee, *op. cit.*, p. 322-324.

<sup>54</sup> *Ibid.*, p. 343.

<sup>55</sup> *Ibid.*, p. 334.

<sup>56</sup> New York State Board of Housing. *Report of the standard of living of 400 families in a model housing project: The Amalgamated Housing Corporation.* New York, 1931.

tive of which was to bring adequate housing within the reach of low-income families. The first unit of the project was completed in 1927 and the second in 1929. The completed project houses over 500 families, 303 of whom live in the five-story walk-up buildings of the first unit and 208 in the six-story elevator apartments of the second unit. The buildings are operated on a cooperative basis, the tenants being the stockholders of the corporation and consequently the owners of the property.

The average rental for the entire project is \$11 per room per month, the maximum average allowed by the State Housing Law outside of the Manhattan Borough. The rental scale is from \$9 to \$12.50 per room since the apartments in the elevator building are considered more desirable.<sup>57</sup> This rental includes the payment of interest on the mortgage at the rate of 5 per cent, amortization at the rate of 2 per cent, taxes on land (buildings are tax exempt for 20 years), and maintenance costs which include expenses of heat, water, insurance, redecorating, wages and salaries of apartment house employees.<sup>58</sup> This group of families was able to secure a particularly favorable type of financing because of the assistance rendered them by the Amalgamated Bank, the Amalgamated Clothing Workers Credit Union, and the Jewish Daily Forward. In addition to the large auditorium, kindergarten, library, gymnasium, and tea room, which are used cooperatively, the tenants enjoy the advantage of a cooperative grocery and dairy store and the cooperative purchase of milk, ice, and laundry service.<sup>59</sup>

In about 80 per cent of the families included in the study the parents were foreign born, 60 per cent having been born in Russia. The average number of persons per family was 3.7. Yearly family expenditures ranged from \$1,000 to \$5,000 and over, but 60 per cent of the families spent less than \$3,000 a year. The percentage allotted to housing decreased as the income increased. It ranged from 33.1 in families spending from \$1,000 to \$1,499 to 12.4 in

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<sup>57</sup> New York State Board of Housing. *Report for 1929*. Legislative Doc. no. 84, 1930, p. 21-23.

<sup>58</sup> Information received in a letter from the New York State Board of Housing. See also *Slums, large-scale housing, and decentralization*. Publications of the President's Conference on Home Building and Home Ownership, vol. III, for information on this project.

<sup>59</sup> New York State Board of Housing, 1931, *op. cit.*, p. 18, 65ff.

New York State Board of Housing. *Report for 1929, op. cit.*, p. 21-23.

families spending \$5,000 and over. For all families with expenditures of \$2,500 and over (57 per cent of the group), the average expenditure reported for housing was less than 20 per cent of total expenditures. The average for the entire group was 18.4 per cent of the average annual expenditure, but when the cost of heat was deducted the figure was only 16.8 per cent. The proportion allotted to house operation varied only slightly in the different expenditure groups, the range being from 6.6 per cent for families spending from \$3,000 to \$3,499, to 8.1 per cent for families spending \$5,000 and over. The average for the group was 7.2 per cent of the total expenditure when the cost of heat was excluded, and 8.8 per cent when it was included in operating costs. Eliminating the lowest expenditure group, the percentage spent for food decreased as the income increased and that for "all other" increased. The percentage apportioned to clothing increased steadily until total expenditures reached \$5,000 and over and then decreased.

Table 13. Percentage distribution of average expenditures of 400 families in the Amalgamated Housing Corporation classified by size of family expenditure \*

Family expenditures	Number of families	Total	Housing †	House† operation	Food	Clothing	All other
Total and average..	400	<i>Per cent</i> 100	<i>Per cent</i> 18.4	<i>Per cent</i> 7.2	<i>Per cent</i> 33.0	<i>Per cent</i> 10.7	<i>Per cent</i> 30.7
\$1,000-\$1,499 .....	17	100	33.1	7.7	34.5	6.2	18.5
1,500- 1,999 .....	65	100	25.7	7.9	37.7	7.7	21.0
2,000- 2,499 .....	89	100	22.4	7.0	37.0	8.9	24.7
2,500- 2,999 .....	73	100	19.2	6.8	35.8	9.9	28.3
3,000- 3,499 .....	55	100	16.6	6.6	32.9	11.3	32.6
3,500- 3,999 .....	42	100	15.9	7.3	31.2	11.9	33.7
4,000- 4,499 .....	26	100	14.8	6.7	30.2	13.7	34.6
4,500- 4,999 .....	16	100	13.1	6.8	28.6	14.0	37.5
5,000 and over .....	17	100	12.4	8.1	25.2	11.7	42.6

\* New York State Board of Housing, 1931, *op. cit.*, table LVI, p. 87.

† Includes interest on mortgage at the rate of 5 per cent, amortization at the rate of 2 per cent, taxes on land, and maintenance costs; heat, water, insurance, redecorating, wages and salaries of apartment house employees.

‡ Includes gas, electricity, telephone and telegraph, service, personal and housecleaning supplies, ice and laundry.

## Rental Costs and Purchase Price of Housing of Specified Types

**Rental costs.** Few of the studies of family income and expenditure present data on the specific type of housing which is secured for a given expenditure. The study of Ford employees



in Detroit is one of the few. It presents the average annual amount paid for rent by families living in one-family houses, two-family houses and multiple dwellings, and a definite picture of the housing secured for an average annual rental of \$391.<sup>60</sup>

These average yearly expenditures provided homes that tended toward a definite "type" which was described as having the following characteristics: <sup>61</sup>

1. A separate house or whole floor in a two-family house.
2. Four or five rooms and bath, all plastered.
3. Bathroom, inside toilet, running water inside, kitchen sink, and sewer connection.
4. Outside exposure for all rooms and no dark rooms.
5. One room or more per person. (The situation in 77 of the 100 houses.)
6. Facing on improved street, with street lights. (Only 15 families lived on unimproved streets.)
7. Heated by individual stoves, with half the rooms equipped for heating. (Central heating was found in 44 homes.)
8. Window screens in 95 cases, and door screens in 96 cases.
9. Living room papered in 91 cases, painted in 7, white plaster in 1, and rough plaster in 1.
10. Dining room papered in 87 cases, painted in 11, white plaster in 1, and rough plaster in 1.

The Heller Committee study of street-car employees presents a fair but much less complete description of the house secured for \$357 a year in the East Bay District, San Francisco.<sup>62</sup> The type of housing afforded by the average yearly expenditure of \$237 by the working man in "Middletown," on the other hand, is very vividly described.<sup>63</sup>

The National Industrial Conference Board has summarized data showing the representative average minimum rent per room per month for specified types of housing in five boroughs of New York City for 1926, and the representative average minimum rent per month for prevailing types of housing in twelve industrial cities for 1927. The type of housing which wage earners secured

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<sup>60</sup> U. S. Dept. of Labor, Bureau of Labor Statistics, "Standard of living of employees of Ford Motor Co. in Detroit," *op. cit.*, p. 1236-1237.

<sup>61</sup> *Ibid.*, p. 1237-1238, 1248-1249.

<sup>62</sup> Heller Committee, *op. cit.*, p. 343.

<sup>63</sup> Lynd, *op. cit.*, p. 99-100.

for a given rental was quite definitely specified. Little attention was given, however, to the adequacy of sunlight, air, and play space provided.<sup>64</sup>

Whitten has summarized rent data, for different types of dwellings in 73 cities of different size in the north-central and eastern states, which were secured by public utility companies by means of careful house-to-house canvasses. His summary is presented in *Table 14*.

The term "flats" as used in his classification includes "living quarters over stores, apartments in two-family dwellings where families live one over the other, apartments in three-deckers and similar buildings, and all unheated apartments." Under "apartments" were included only multi-family houses where heat was furnished as a part of the rental.<sup>65</sup> The rentals for these apartments, however, were reduced to place them on the same basis as rentals in other dwellings. No description of the dwellings which could be secured for these rentals is included in the discussion.

**Purchase price.** Of the studies of family income and expenditure which have been analyzed, only three included data on purchase price. The two studies of the Bureau of Labor Statistics, however, show data on rental value of homes owned. The average rental value of homes owned by Ford employees in Detroit with average yearly expenditures of about \$1,720 is given as \$375. If this represents 10 per cent of the sale value of the property, the purchase price was approximately \$3,750. The type of housing provided for this expenditure is described above. The findings of the Heller Committee study showed that the average purchase price of the houses owned by 40 street-car employees with average annual expenditures of \$2,151 was about \$3,400. This house was a "cheap, modern cottage" in the suburban East Bay region of San Francisco. Homes of salaried workers employed in downtown Pittsburgh ranged in price from an average of \$4,150 for

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<sup>64</sup> National Industrial Conference Board, Inc. *The cost of living in twelve industrial cities*. New York, 1928, p. 19-31.

<sup>65</sup> Whitten, R., and Adams, T. *Neighborhoods of small homes*. Cambridge, Harvard University Press, 1931, p. 9.

Table 14. Percentage of total number of families in each rental class, as estimated for 1930 by type of housing and by groups of cities\*

Groups of cities	Percentage of total number of families in each rental class										Total
	\$5.00 to \$14.99	\$15.00 to \$24.99	\$25.00 to \$34.99	\$35.00 to \$44.99	\$45.00 to \$54.99	\$55.00 to \$64.99	\$65.00 to \$74.99	\$75.00 to \$84.99	\$85.00 to \$94.99	\$95.00 and over	
Group I											
Cities of 500 000 and over:											
Single-family dwellings.....	9.8	21.7	19.8	13.1	9.0	5.7	5.2	2.8	2.5	10.4	100
Flats.....	20.3	31.4	22.6	12.9	5.7	3.1	2.8	0.5	0.2	0.5	100
Apartments.....	0.9	6.6	14.7	13.8	11.7	14.4	11.3	8.3	4.3	14.0	100
All types.....	14.7	25.8	21.0	13.0	7.5	4.9	4.3	1.9	1.4	5.5	100
Group II											
Cities of 300 000 to 500 000:											
Single-family dwellings.....	5.0	19.2	17.5	16.2	11.5	6.6	5.5	3.7	3.3	11.5	100
Flats.....	7.0	20.0	22.0	23.3	13.6	8.2	3.0	1.8	0.6	0.5	100
Apartments.....	1.3	3.3	9.5	18.9	24.1	19.9	10.0	6.6	3.1	3.3	100
All types.....	5.7	17.7	19.0	20.4	14.1	9.0	4.7	3.3	1.8	4.3	100
Group III											
Cities of 100 000 to 300 000:											
Single-family dwellings.....	6.7	18.7	22.4	16.4	11.8	6.2	4.8	3.5	2.9	6.6	100
Flats.....	9.0	31.1	31.5	16.1	7.4	2.8	1.1	0.6	0.2	0.2	100
Apartments.....	0.6	7.1	18.7	18.7	16.0	12.2	6.0	4.1	2.5	4.7	100
All types.....	8.1	25.3	27.3	15.8	9.5	4.6	3.0	2.0	1.4	3.0	100
Group IV											
Cities of 50 000 to 100 000:											
Single-family dwellings.....	8.4	28.6	25.6	15.6	10.0	4.5	2.5	1.4	0.9	2.5	100
Flats.....	11.6	36.9	30.7	13.8	4.6	1.5	0.5	0.2	0.1	0.1	100
Apartments.....	1.8	12.6	27.5	26.6	13.6	10.3	3.8	3.0	0.5	0.3	100
All types.....	9.0	30.7	28.2	15.6	8.1	3.6	1.7	1.0	0.6	1.5	100
Group V											
Cities under 50 000:											
Single-family dwellings.....	11.1	26.8	24.4	13.1	9.5	5.2	2.9	2.3	1.7	3.0	100
Flats.....	11.2	38.1	28.8	12.0	5.8	2.0	1.2	0.4	0.3	0.2	100
Apartments.....	2.5	9.3	18.7	17.2	13.7	13.9	18.6	2.7	2.7	0.7	100
All types.....	11.0	30.0	25.5	12.9	8.4	4.4	2.7	1.7	1.3	2.1	100
Total, 73 Cities											
Single-family dwellings.....	8.5	22.6	22.0	14.7	10.2	5.6	4.4	2.7	2.2	7.1	100
Flats.....	14.2	31.1	26.5	14.9	6.9	3.3	2.0	0.6	0.2	0.3	100
Apartments.....	1.0	6.6	18.0	16.8	15.3	14.6	9.4	6.5	3.3	8.5	100
All types.....	10.8	26.0	24.2	14.9	8.8	4.9	3.4	1.9	1.3	3.8	100



families with incomes under \$1,500, to \$26,081 for those with incomes of \$10,000 and over. The Yale faculty members with incomes of from \$4,000 to \$10,000 and over purchased homes ranging in price from \$8,500 to \$70,000.

The Philadelphia Housing Association in its report for 1928 says "the home seeker in Philadelphia whose annual income is \$1,800 and over can find a wide choice of well-equipped, newly built houses of attractive layout at sales prices beginning as low as \$4,000, or \$800 per room."<sup>66</sup> The house which may be purchased for \$4,000 is described somewhat in detail, as are the houses which may be purchased for \$5,100, \$5,400, and \$6,200. The monthly carrying charges for these houses vary from \$30.40 to \$39.20. Since 1924, the percentage of houses erected for \$6,000 or less in Philadelphia increased from 15.4 per cent of the total construction to 35.4 per cent in 1928. However, only 5.3 per cent of the single-dwelling construction of 1928 was being sold for \$5,000 or less.<sup>67</sup> The 1929 report of the Association described the "gold-medal" house which was designed to sell for \$4,675 and which could be purchased for a carrying charge of only \$26.90 per month.<sup>68</sup>

The City Housing Corporation of New York City, a limited dividend company, organized to build better homes and communities, describes in detail the homes it has built at Sunnyside Gardens, Long Island City, New York, which sell for from \$4,800 to \$19,500 with initial payments as low as \$480 and monthly payments averaging \$11 a room. The houses are of attached group design. There are one-family houses of six rooms, two-family houses of two, four or five-room apartments, and three-family houses containing one six-room and two three-room apartments. Only one-third of the land has been built upon, with the remaining two-thirds devoted to gardens, lawns and play spaces.

The apartments built by the limited dividend housing companies organized under the New York State Housing Law were designed

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<sup>66</sup> Newman, B. J. *Housing in Philadelphia*. Report of Philadelphia Housing Association, 1928.

<sup>67</sup> *Ibid.*, p. 8, 1928.

<sup>68</sup> *Ibid.*, p. 40, 1929.

Table 15. Average expenditures for housing and investment in housing by renters and home owners, as shown by specified studies of urban family living

Author of study, place and date	Occupation of chief breadwinner	Average size of family	Average annual income of entire group	Average annual ex- penditure of entire group	Renters  Number	Owners  Number	Average annual expenditures for housing and investments in housing				
							Renters	Home owners			Renters and owners  Per cent
							Dollars 237	All Dollars .....	Owning clear Dollars (c)	Mort- gaged Dollars 378 (d)	Dollars 314 17.1
Lynd, Middletown, 1924	Wage earners: manu- facturing and me- chanical industry	Persons 5 (a)	Dollars 1,539 (b) 1,690 (c)	Dollars (c)	39	63	Dollars 237	Dollars .....	Dollars (c)	Dollars 378 (d)	Dollars 314 17.1
U. S. Bureau Labor Statistics, Detroit, 1929	Semi-skilled and un- skilled Ford em- ployees	4.5	1,712	1,720	68	32	391	512 278 (g)	.....	512 278 (g)	389 (f) 22.6
Houghteling, Chicago, 1924	Unskilled laborers	5.7	1,852	(c)	301	130	283	(c)	(c)	(c)	(c)
Heller Committee for Research, San Fran- cisco (East Bay Dis- trict), 1924-25	Street railway em- ployees	4.2	1,886 (h)	1,979 (b) 2,151 (c)	46	40	342	374 (i)	265	440	357 17.3
Nienburg, Anthracite coal region, (j) 1922- 23	Miners: contract, skilled, semi-skilled and unskilled	5.8	2,111	2,187	423	289	162 (k)	439 (l)	(c)	(c)	208 9.5
U. S. Bureau Labor Statistics, 1928, New Orleans Baltimore Boston New York Chicago	Federal employees (salary under \$2,500)	4.02 4.08 4.07 4.26 4.18	2,194 2,337 2,411 2,483 2,746	2,280 2,435 2,498 2,598 2,928	73 39 67 96 69	32 57 35 5 33	324 422 461 471 576	768 608 830 718 838	(c) (c) (c) (c) (c)	(c) (c) (c) (c) (c)	361 (j) 541 (j) 501 (j) 486 (j) 613 (j) 16.0 22.0 20.0 19.0 21.0

Table 15.—Continued.

New York State Board Housing, New York City, 1930	Clothing trades, pro- fessional service, building trades and other	3.7	2,621	2,880	.....	400	.....	532(m), (n)	.....	.....
Pittsburgh Bureau of Business Research, Pittsburgh, 1930	Salaried workers in down-town Pitts- burgh	(c)	3,332 (b) 4,151 (c)	(c) (c)	789	563	636	1,128(o)	(c)	886 (f)
Zimmerman, Two Min- nesota Cities, 1927- 28	All occupational groups	3.3 (p)	3,878	3,943	119	133	394	375 318(g)	(c)	411 (q) 354 (g)
Peixotto, Berkeley, 1922	Faculty of University California	3.5	5,344	5,512	35	61	(c)	(c)	(c)	871
Yale University (r) Committee on the Academic Standard of Living, New Haven, 1927	Instructors, Ass't. professors, Assoc. professors, Full professors	(c) (c) (c) (c)	3,050 (s) 5,050 (s) 6,300 (s) 9,200 (s)	(c) (c) (c) (c)	24 33 9 12	3 12 11 34	690 (t) 900 (t) 1,000 (t) 1,110 (t)	(c) (c) (c) (c)	(c) (c) (c) (c)	(c) (c) (c) (c)

(a) Median size of family.

(b) Average for renters.

(c) Not available.

(d) Average investment in home ownership.

(e) Average for home owners.

(f) Average rental for families renting and rental value for families owning homes.

(g) Payment on principal excluded.

(h) Average income for 98 families. Complete housing data are available for 86 families.

(i) Includes rent, carfare to and from work, water, interest on capital, instalments paid on principal, taxes, insurance, special assessments, cost of upkeep, renovation and garage.

(j) Includes only families living in cities of 2,500 or over.

(k) Includes water for about one-half renters.

(l) Investments in housing. Figures available for the 84 families making payments on homes during period of study, etc.

(m) Includes interest on mortgage, payments on principal, taxes on land and maintenance costs: water, insurance, redecorating, wages and salaries for apartment house employees.

(n) When the cost for heat is deducted the average annual expenditure for housing is \$484 or 16.8 per cent of the average total annual expenditures.

(o) Rental value of owned homes.

(p) Average adult units.

(q) Does not include interest on mortgage in owned homes.

(r) Data given apply to married faculty with children.

(s) Median income.

(t) Median rent including water and repairs.



to provide adequate housing for families earning less than \$2,500 per year. Besides the apartments built by the Amalgamated Housing Corporation, which have already been described and which house more than 500 families, the Farband Housing Corporation project contains 128 apartments, the Brooklyn Garden apartments 275, the Amalgamated Dwellings 231, and the Stanton Homes Corporation 44, making a total of 1,189 apartments with an average rental of from \$8.00 to \$12.33 per room per month.<sup>69</sup> All of these dwellings provide direct sunlight and through ventilation for every apartment. They are equipped with modern facilities and conveniences, including steam heat, electric light, hot and cold water, and a bathroom for each apartment.<sup>70</sup>

These data indicate that adequate housing at a moderate cost can be made available for the family with an income below \$2,500 if definite economies, such as those cited by the Philadelphia Housing Association, and those made possible by the housing law of New York State, are practiced.

But figures for New York City show that only a very small per cent (3 per cent in 1924) of total new construction is offered at rents of \$12.50 per room per month, which is the maximum that families in this income group can pay.

*Table 16* summarizes material on the percentage distribution of expenditures among the principal items of the family budget as shown in specified studies. The findings of the various studies which have been analyzed seem to indicate that the proportion of income allotted to "housing" decreases with increases in income, and at a given income level decreases with increased size of family. It varies also with the housing facilities and costs in the community in which the family is located, the type of tenure, and the basis on which payments are being made, if the home is being purchased. These tentative conclusions must be checked by future studies of urban family living where housing expenditures are treated in detail and with systematic attention to the factors which produce variations in the housing of different groups.

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<sup>69</sup> New York State Board of Housing, Report for 1929, *op. cit.*, p. 43.

<sup>70</sup> *Ibid.*, p. 9.

Table 16. A percentage distribution of expenditures as shown in specified studies

Author of study, place and date	Number of fam- ilies	Average size family	Occupation of chief breadwinner	Average annual ex- penditure	Per cent of annual expenditures allotted to						
					Housing	Household operation	Food	Clothing	Invest- ment in housing	Other sav- ings and invest- ments	Miscel- laneous
Bureau of Labor Sta- tistics, Detroit, 1929	<i>Number</i> 100	<i>Persons</i> 4.5	Semi-skilled and unskilled Ford em- ployees	<i>Dollars</i> 1,720	<i>Per cent</i> 22.6	<i>Per cent</i> 15.0	<i>Per cent</i> 32.3	<i>Per cent</i> 12.2	<i>Per cent</i> *	<i>Per cent</i> 3.4	<i>Per cent</i> 14.5
Heller Committee, San Francisco, 1924- 25	98	4.2	Street-car em- ployees	2,109	17.9	10.0	38.0	11.2	†	5.2	17.7
Bureau of Labor Sta- tistics, 1928											
New Orleans	105	4.02	Federal em-	2,280	15.8*	15.3	34.2	11.4	*	5.9	17.4
Baltimore	96	4.08	ployees (sal-	2,435	22.2*	15.5	29.5	12.4	*	6.2	14.2
Boston	102	4.07	ary under	2,498	20.1*	15.2	32.5	11.3	*	6.1	14.8
New York	101	4.26	\$2,500)	2,598	18.7*	12.4	35.7	11.7	*	6.3	15.2
Chicago	102	4.18		2,928	21.0*	15.5	28.0	12.0	*	5.7	18.5
New York State Board of Housing, New York City, 1930	400	3.7	Clothing, pro- fessional service, build- ing trades, others	2,880	16.8†	8.8	33.0	10.7	†	5.0	25.7
Zimmerman, Two Min- nesota cities, 1927- 28	252	3.3§	All occupa- tions	3,943	9.0¶	9.4	15.1	8.3	1.4	37.0¶	19.8
Peixotto,   Berkeley, 1927	96	3.5	Faculty, Uni- versity of California	5,512	15.8	13.5	16.2	8.8	†	13.1	32.6

\* In calculating total family "expenditures," rental value of owned homes

§ Average adult units.

¶ Fifty-two per cent of the families included in this study were home owners. Interest payments on mortgages are included with other savings and investments.

|| Peixotto, *op. cit.*, p. 123.

† Included in housing.

‡ Fuel deducted from housing costs and included in household operation costs.

## SUMMARY

The problem of maintaining a standard of living regarded as suitable by all the members of the family seems to be a difficult matter regardless of the size of the income; but when the income ranges from less than \$1,000 a year to about \$2,500 a year, the problem of providing food that will meet the nutritional requirements of the various members of the family, housing that conforms to the minimum standard for health and efficiency, clothing that is adequate for comfort and cleanliness and that permits of reasonable conformity to prevailing styles, recreation that contributes to mental health, and savings that will care for emergencies or provide in part for the future, is truly complicated.

Primarily because of the excellent work of some of the social agencies dealing with low-income families, "standard" budgets are available which give the amount and cost of the commodities necessary to provide for the "minimum standard of living" for families of varying size and composition in a given locality. For the family of five, the minimum amount given in the standard budgets ranges from \$1,100 to \$1,800 a year. From 19 to 25 per cent has been recommended as the per cent of the total to be allotted to housing, from 9 to 17 per cent for house operation, from 33 to 42 per cent for food, from 12 to 15 per cent for clothing, from 3 to 4 per cent for savings and investment, and from 10 to 17 per cent for all other items. The differences are accounted for in part by variations in the price of the commodities in the different cities, and also in part by differences in the standards of the investigating committees. Recommended divisions of incomes of from \$2,500 to \$9,600 are also available, but in general these have not been worked out in as great detail as those for the lower-income groups.

This analysis has shown that complete budget material prepared for the assistance of families in the lower and middle-income groups wishing to purchase homes on the partial payment plan is nonexistent. There are several agencies publishing figures on the advisable relationships between income and total cost of housing, but no agency giving budget plans for home-purchasing families of moderate means. It is quite true that every family planning a budget which includes payments on a home, must make its own



plans to fit its own situation. It is also true, however, that plans based on the experience of other families in similar circumstances are of material assistance to families making budget plans, and that many families are asking for them.

If budgets for home-purchasing families of different types are to be developed on a sound basis, they should represent the experience of large numbers of comparable families. To this end it is recommended that further studies of family living be undertaken in the near future and that they present more detailed and comprehensive analysis of the housing situation of the families studied than has been customary in such studies in the past.

The preceding analysis of recent studies of family income and expenditure, made since 1922, has brought out very clearly the meager and unsatisfactory character of the available data on expenditures for housing by families of varying composition in relation to their expenditures for other goods and services.

*Table 15* presents the number of home owners and renters and average expenditures for housing as shown by the studies analyzed. Some of the reports showed that families with income as low as \$1,000 owned their own homes. Home ownership showed a tendency to increase as income increased. Renters predominated in the lower income groups. Not until the salary was \$3,000 or over were homes purchased by University of California faculty families, and it was not until the salary was \$4,000 or over that Yale faculty families purchased homes, but as in the wage and low-salaried groups, home ownership had a tendency to increase with increased income. Home owners exceeded renters in the academic families studied in Berkeley, but the reverse was true in New Haven. In all but two of the studies analyzed that include both home owners and renters, the housing costs for the two groups are averaged, and in all but one study expenditures for the other items of the budget are also averaged for the two groups.

## CHAPTER VI

### RECOMMENDATIONS AND CONCLUSIONS

#### I. In Relation to the House and Equipment It Is Recommended

A. That the interior design of homes be thoroughly checked with a view to ease of operation and care, as well as accessibility and privacy.

1. That studies be made to determine the effect of variations in design upon the work involved in different types of housekeeping as determined by size and composition of family, family income, paid household service, and use of substitute services.

2. That studies be made under normal home conditions to determine to what extent interior design, finishes, and equipment of the home are causal factors in fatigue.

3. That a rating chart be prepared for the study of house plans.

B. That further study be made of desirable storage spaces in relation to:

1. Convenience (needs and location), orderliness, size in relation to cost for various types of dwellings suited to different geographical locations, and ages, number, and habits of family members.

2. Optimum volume of family purchase of staples in terms of family composition, in relation to adequate storage space and its cost.

C. That further research make available information on materials and finishes as related to durability, cost, tendency to mar and collect dust, ease of cleaning, suitable reagents for use in their care, the effect of different finishes and colors upon the worker with reference to various types of fatigue, i.e., eye strain, muscular fatigue, and nervous strain.

D. That further studies be made to determine the kind, design, and arrangement of built-in and fundamental equipment that will increase efficiency in performance of household operations.

E. That a study be made to determine the extent to which the provision of common equipment or services in apartment houses or in neighborhood groups would reduce the capital investment and carrying charges per family and increase the availability of labor-saving devices and facilities.

## II. In Relation to Household Operations It Is Recommended

A. That, in view of the fact that definite information on the effective methods of performing household tasks is so meager, the following studies be made:

1. Laboratory studies under normal home conditions of the various household tasks to determine the most effective methods of performance.

2. In view of the importance of laundering among household tasks, a study of home laundering, covering all parts of the country and varying home conditions, so that results may be a guide to housewives and manufacturers. This study should aid in determining the part equipment plays in reducing work, the cost of purchasing and operating various kinds of equipment, plumbing facilities desirable, and the best methods of performance. As a result of this research, a printed manual could be prepared of recommended practice for home laundering.

3. Further studies of the length of the homemaker's working day and of the various factors which affect the expenditure of time in the household.

4. Studies to determine the effect of systematic rest pauses of varying duration, and at different periods in the day.

B. That principles of scientific management be developed which are adapted for use under home conditions.

C. That research be undertaken to determine the effect on the morale of the family of sharing responsibilities of the home and to determine which household tasks are suitable to children of different ages.

D. That data be secured to determine the extent to which the lack of efficient household workers is a causal factor in the trend toward apartment house or hotel rather than single-family house dwelling.

E. That further research concerning the availability and utilization of substitute services for housekeeping tasks take the following lines:

1. Development of methodology which can be used as the basis for future studies, making data comparable from year to year.

2. Collection of data on time and money cost and effect upon individual and family morale of comparable foods or services produced in and outside of the home, for families of different size and composition, and in communities of different types.

3. Formulation of recommendations, based on these analyses, for changes in those parts of the house most affected by the transfer of production to outside agencies or its retention within the home.



### III. In Relation to Purchasing Procedures It Is Recommended

A. That the Conference bring to the attention of the manufacturing and distributing groups the importance of improving the means for intelligent retail purchasing, as a direct aid to home ownership and better housing in this country.

B. That, wherever practicable, quality specifications\* be set up for consumer's goods, based on a study of the situation as it now exists and the actual need of the consumer; that these specifications be established and regulated by the industries concerned under some such procedure as that now used for commercial standards; and that the essential facts covered by the specifications be given on commodity labels.

C. That, when the nature of an article is such that quality specifications can not be designated on it, a grading system be used and grade designations be given on the labels, the basis for which will be readily ascertainable by the purchaser.

D. That steps be taken to set up a simple standardized nomenclature for grading systems, the terms of which will be self-explanatory and applicable to grades now in use and those developed in the future.

E. That advertising of customer's goods be patterned more closely after present-day advertising of industrial goods, with emphasis given to the dissemination of facts regarding the constituent materials, construction, and performance of the commodity advertised.

F. That the Conference urge retail stores to recognize their responsibility as buyers for the community and base their purchases on specifications and the results of testing laboratories; and that this information be made available for the use of their clerks and customers.

G. That consumer education be directed toward teaching the technical facts necessary for an adequate understanding of the performance of materials and constructions, and their utilitarian and economic value for various household uses; that consumers be encouraged to form organizations in order to initiate and finance

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\* Committee not unanimous on this subject.

impartial laboratory testing of commodities when no other means of obtaining comparative data is available.

#### IV. In Relation to Budgeting for Housing and Home Ownership It Is Recommended

A. That in the near future studies be made that will show expenditure habits of home owners with homes owned clear, of home owners with homes mortgaged, and of renters, distinguishing families on the following bases:

1. Type of dwelling: Single-family dwellings, two-family dwellings, multi-family dwellings.
2. Income levels.
3. Occupational groups.
4. Size and composition.
5. Size and geographic location of community.

#### B. That in such studies:

1. A sufficient number of reports be collected so that for one city, or for a group of cities where housing conditions are similar, after the reports have been sorted according to occupation, at least fifty families will be represented in each major income group. For a study which would be representative of the situation in urban communities throughout the United States, this would seem to imply the collection of data from at least 15,000 families.

2. Data for "housing costs" and "investment in housing" be presented in sufficient detail to show separately for owned homes:

- (a) Year of purchase.
- (b) Purchase price.
- (c) Down payment on house.
- (d) Yearly payment on principal.
- (e) Interest on loan.
- (f) Insurance.
- (g) Taxes and assessment.
- (h) Minor repairs, alterations, and renovation.
- (i) Extensive remodeling.

3. Services included in "rent" paid be ascertained for renting families, and that the data obtained be classified in such a way as to show payments for shelter, heat, and light separately.

4. Data for "household operation" be presented to show separately all the items included in this category and that special attention be given to the separation of expenditures for furniture and furnishings into replacements, repairs, care, and additions, and that the latter be included under investments, rather than as part of the annual operating expenses.

5. Data on "investments" be presented to show separately investment in housing, investment in additional furniture and furnishings, life insurance, and other savings and investments.

6. Data be analyzed to show :

- (a) How much increase in actual expenditures for current housing, household operation, and investment in housing, follows a given increase in income in families of varying composition.
- (b) How much decrease or increase in the proportion of the total income spent for these items follows such increase in income.

7. Expenditure be expressed in terms of percentage of the income as well as percentage of expenditure.

C. That a conference of research workers in the field of family living be called to consider classifications of family expenditures to be used in future studies, in order that items included under "housing" in future studies may be given more detailed and uniform treatment.

D. That such further research be undertaken as may be necessary to translate data on the expenditures of home-purchasing and renting families into terms of budgets for such families.

E. That, in view of the fact that the report has shown urgent need for reducing housing costs for the wage-earning and lower-salaried groups, research be undertaken to determine the effects of the housing law adopted by New York State in 1926.



## PART II. KITCHENS AND OTHER WORK CENTERS

### CHAPTER VII

## EXISTING CONDITIONS AND PROBLEMS IN WORK-AREA PLANNING

### INTRODUCTION

The Committee on Kitchens and Other Work Centers has been studying the American, and to some extent the European situation, since the beginning of July, 1931. Its objective was to make a survey of the actual conditions in single-family dwellings and multi-family dwellings throughout the various sections of the country under both rural and urban conditions. The information from these data was to be used as a basis upon which to project future studies.

Due to the wide variation of problems and their differences between urban and rural kitchens and other work centers, the committee was organized into three groups.<sup>1</sup> These groups studied kitchen and other work-center conditions in rural and urban dwellings in the United States and reviewed, to some extent, the literature on changes in kitchens and other work centers in European countries. As far as time and money allowed, investigations were carried on in order to obtain information on present usages. To some extent, independent studies were made for the purpose of securing new data from which standards might be developed for planning the routing of work.

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<sup>1</sup>Group A. Requirements for Working Areas in the Modern House—Maud Wilson, chairman. This group studied, first, the effect of size and composition of the family, of income level, change in the amount of work done in the household on work-area requirements; second, the requirements as influenced by different age levels of the family and different stages in a homemaking career.

Group B. The Efficiency of Work Areas—Louise Stanley, chairman. Section 1 included the arrangement of equipment, and the use of time, motion and distance studies with a view to setting up standards to be used in planning kitchen areas. Section 2 of the same group made a study of the laundry area, its equipment and storage needs—Evelyn Roberts, chairman.

Group C. Building Problems Relating to Work Areas—H. E. Wichers, chairman. The report of this group was confined first, to a study of standard designs in floors, easily built cabinets, tables, standard coverings, ceilings, stoves and sinks; and second, newer construction problems of combining bath and laundry areas, and a study of additional workrooms on the farm.

In view of the fact that it is probable that from 75 to 85 per cent of our population is living under conditions of income that limit the cost of dwellings to between \$2,500 and \$3,500, it seemed wise to confine the study largely to this group. This does not mean that the working conditions in dwellings of higher valuation do not need study and possibly improvement, but that in the short time allotted before the report had to be made, this type of study of houses in the \$7,000, \$8,000, \$10,000, \$15,000 and over cost range, could wait.

Since in the United States at least one-fifth of the population doubtless spend a large portion of the working day in kitchens and other work centers, the actual condition under which the work is carried on is of vital importance. While industry has forged ahead in improving working conditions through the study of space, ventilation, lighting, sequence of work and adequate equipment, the working conditions in the average home have moved forward, as a whole, very little since the modern industrial movement came to the front.

It is obvious that the kitchen and other work centers should not be industrialized in the sense of speeding up processes. To over-emphasize the production of tangible goods may be of minor consideration compared to the maintaining of standards in health, happiness and character development of the family. The work centers in the average home should be made livable, and as convenient, attractive and efficient as modern science can make them, but there are economic limitations that prevent the program from reaching perfection. Even though the work center of the average home is not an income-producing center, if it is wisely equipped and wisely managed, it may help in raising the standard of living without increasing the money expenditure.

### WORK-CENTER TRENDS AND PROGRESS

The European studies that have been reviewed include some of the conditions of England, France, Netherlands, Norway, Sweden and Germany. They indicate that the investigators there are alive to the same housing problems, and that in the newer construction they are advocating the smaller kitchen space, the unit construction of working areas, the better utilization of modern methods of ventilation and garbage disposal, and the introduction of those work areas where the worker may remain seated at her

task. In many of these respects they have followed the better type of kitchen and other work-center planning in the United States. In some respects they have forged ahead of us. The studies indicate that we are in advance in all types of plumbing, in much of our cabinet work, and in our use of the smaller space in multi-family dwellings. We are in advance in the type of laundry equipment and in the utilization of cooperative laundry rooms in our new apartment houses. We possibly can learn from their experience in the introduction of the nursery room, the kindergarten, the children's retreat, and the children's library in the multi-family dwelling construction.

We need to recall that in most of the newer construction of multiple dwellings for the European industrial population, the number of rooms is very limited. In Russia, the one room to the family or two rooms to the family are typical situations. The newer multiple buildings have cooperative kitchens—one for every three to five apartments, but the actual use of them seems to be more to keep warm and ready for service, the foods bought from community kitchens. Outside of Russia the cooperative kitchen is a very rare feature. In the United States it is practically nonexistent, although it has been advocated in some of our newer cooperative multiple dwellings in New York where they have installed the clinic, the children's retreat, and the children's library.

In American kitchens and other work centers, the trend is toward reducing the total square feet of floor area. The oblong type which allows the working areas, storage, and cabinets to be put on the two long walls, and with cross ventilation, or at least with one window at the end, is most often found. If only one window, the use of an added ventilation shaft, with forced ventilation to remove the excessive odors and heat, is desirable.

Better transportation facilities have decreased the need for large storage space in dwellings, except in remote farmhouses. The practice of buying in quantity, which once was considered economical, now is passing, thus cutting down the cost of building extra storerooms or large basement areas for storage.

In the remodeling<sup>2</sup> of older houses to meet modern conditions, the practice of cutting down excessive kitchen area in order to

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<sup>2</sup> See *Housing and the community; home repair and remodeling*. Publications of the President's Conference on Home Building and Home Ownership, vol. VIII.



make the work area more compact and serviceable, and thus utilize the extra floor space for other purposes, is most commendable. Some of the new inexpensive wall materials are well adapted to these remodeling projects.

The committee has investigated also the problem of heights of working surfaces with the worker standing or sitting, the sequence of work, the width of working surfaces and the width of storage shelves; although it is impossible to assemble a kitchen that will be a model for every one of the nearly 30,000,000 private kitchens in this country. This committee recommends only the general principles according to which the kitchen and other work centers may be planned and arranged.

Out of the preliminary studies there has come a recognition of the need for the development of certain definite measures or modules to be used in house construction so that at least kitchen dimensions may be adjusted to the space needs necessary for such kitchen equipment as sinks, worktable and cabinets. This should make possible standard building units. Architects and contractors, then, who build, will be able to meet more nearly the demand for a satisfactory, sanitary, and suitable work area for the workers in this country. To that end architects, contractors, and homemakers must get together in order to develop better plans which will reduce the cost of housing and increase the joy of living in the house. In fact, the plans for lowering the cost of houses and their equipment depends upon information on standards for working areas, working heights and storage space, so that quantity production may be made possible.

An examination was made by the committee of the principal books, bulletins, circulars and articles dealing with kitchens, and published since 1920, for the purpose of determining the extent to which actual needs had been considered in formulating suggestions and standards for houses, their equipment and arrangement. Most of the recommendations apparently have been based on observations or experiences, in combination with the results of the few efficiency studies which have been made. Those in many state bulletins have been made to suit sectional needs or the needs of particular income levels or occupational groups. Those intended for wider application are apt to ignore possible variations among families in the kind and amount of work done in the household;

hence, they are of value only to persons capable of modifying or supplementing them to suit the needs of a particular group.

Conditions required for economy in the use of time and for the conservation of energy have received much consideration, and specifications for meeting these requirements are on the way to becoming standardized. This is natural because they are more nearly universal in their application than those involved in meeting other requirements. Certainly the need for considering the convenience of the worker is of the greatest importance, and the dispatching of tasks with minimum expenditure of time and energy is a worthy goal. The chief criticism one may make of suggested standards is that of an inadequate consideration of all factors involved in actual home situations. The publications are vague as to the amount of storage room needed. Work space necessary for routine operations often is given, but the demands for space to carry on extra or seasonal tasks frequently are forgotten. It is taken for granted that the homemaker is the only kitchen worker. Tools and equipment used in doing the work of the household are assumed to be more nearly complete and modern than they are. The tendency to overestimate the extent of the use of commercial services such as laundry, dry cleaning, and bakery, particularly by city families, is apparent. They do not take into account the differences in the ways of the household when there are guests and when the family is alone. They fail to realize that the housekeeper, particularly if she is the mother of small children, seldom can work undisturbed at her tasks, and that she must have the various work centers within easy reach.

Another tendency revealed by an examination of the literature on housing arrangements is that of emphasizing the more important functions of the house and disregarding the less important. Unless the house provides for all functions, minor as well as major, the kitchen is put to uses for which it is not intended. The homemaker spends half her working day there, and it is often the one room of the house equipped as a workroom. If the kitchen is to be reserved for work with foods only, the simplest way of bringing this about is to provide elsewhere, near the kitchen, the centers for other activities which the homemaker must do or oversee while she is engaged in cooking or dishwashing.

When an attempt is made to give consideration to all factors involved in meeting requirements for families of a certain group,

similar with respect to locality, income level, size and composition of family and occupation, it is evident that there are many compromises to be made. In most cases cost interferes with an effective set-up. Possibly the location of food storage space which is most convenient for the worker may not furnish the best conditions for the care of the supplies. Many differences noted in publications as to the specifications for kitchens, laundries and other work centers are indicators of differences of opinion as to the relative importance of the factors in question.

## KITCHEN AND OTHER WORK-CENTER NEEDS IN URBAN AND RURAL DWELLINGS

### Factors Influencing Existing Conditions

Efficiency in the performance of household tasks depends upon satisfactory arrangement and equipment of work areas. The condition of work areas has been the point of attack in home economics teaching and extension programs for years.

It is a comparatively simple task to set up kitchen and work-center requirements on the basis of type families, providing information on such families is available, and providing also that it is supplemented by a certain amount of community information. One would need to know the probable income level of the family, size and composition of family, the amount of household labor available, the occupation of the chief income earner, and the work done in the household. The last mentioned consideration, the amount of work done in the home, would be affected by the commercial and public utilities available in the community.

Although households apparently are reluctant to give up many of the functions for which commercial services are now available, their reluctance can be ascribed, to a large extent, to cost of the commercial product. Any study of the utilities of a community, therefore, should include not only the kind of goods and services available, but their cost, an estimate of their quality, and a consideration of their convenience, on the assumption that as cost is lowered and quality improved, there will be a greater transfer of production from the household to industry.

It is a mistake to assume that there will be an indefinite reduction in the number of functions retained by the household. If a commercial or public service were to be developed which would



care for little children as adequately as their mothers can, and if opportunities for the employment of women were to increase in number and attractiveness, then a much greater increase in the use of commercial services could be expected, and a more pronounced decrease in the number of functions retained by the home. But as long as a homemaker is withheld from gainful employment by the necessity for caring for children she will tend to fill up her day with productive household labor, retaining those activities which are most interesting or pleasant or whose products are most expensive to buy.

In the relation of income to work-area requirements, there is another factor—that of the amount of household labor available. This is an indeterminate factor, as the tendency of women to earn is permeating all income levels, and the proportion of homemakers who are gainfully employed is on the increase. As the number increases, it undoubtedly will affect household production in two ways: By stimulating the demand upon commercial utilities to provide goods and services formerly supplied in the home, and by making available more money for equipment calculated to decrease the time and energy needed for those tasks remaining in the household. The woman who is gainfully employed must protect her leisure time and her health, and her tendency is to spend her earnings for commodities that are ready to use and for labor-saving devices to aid her in the tasks she can not avoid. This will mean smaller and better-equipped work areas and an increase in the number of cooperative, community and commercial facilities available in towns and cities.

Because existing publications make little or no mention of actual studies of work centers in urban homes, a study was made<sup>3</sup> of a selected group of Chicago families, with the cooperation of teachers and students of home economics in four public schools. These pupils represented an average cross-section of moderate-income level families of American heritage. One hundred and forty students furnished information for their respective families. The data included the place where the main meal of the day was eaten, the extent of the use of the oven, the extent to which guests were present for meals, and the amount of laundry done in the house. This study is too limited to use as a basis for recommendation, but

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<sup>3</sup> Cowles, M. L. *A study of household equipment and habits of living of 140 Chicago families.* (Unpublished.)

it may show the present situation conditioned by housing trends in use of rooms and equipment. For example:

1. Two-thirds of the families reporting eat the main meal of the day in the kitchen showing a trend away from the separate dining room with consequent increase in kitchen areas.<sup>4</sup>

2. Built-in cupboard areas are inadequate.

3. Space is not allowed for the extra equipment and areas needed for entertaining guests in the home (although nearly three-fourths of the families entertain guests at meals at least once a week).

4. The oven was reported used but 2.2 days a week.

5. Facilities for laundry work at home should be provided, either by combination plumbing fixtures in kitchen or bathroom or by providing a separate work area. (More than half of the 140 families do all laundry in basement of home.)

6. A work area for sewing and storage room for sewing supplies and equipment are not provided.

While obviously limited in their application, these trends serve to show how necessary are more studies of family work and living habits, and how fruitful these studies may be.

Many possibilities for investigation are open to the student who is interested in the provision of adequate working areas and storage spaces for the low-cost home. If mass-production methods are to be applied to the building of houses or parts of houses, it would seem in the interest of national economy that designers should have at hand the results of thorough-going studies of the extent and nature of household production carried on by families in all parts of the country.

So far as is known, no attempt has been made to secure the information necessary for a classification of American families with respect to differences in household production. Such detailed and intimate information would need to be secured mainly from housekeepers, by persons well acquainted with household activities and with a knowledge of the ways in which living habits and housing arrangements are apt to influence one another. This suggestion carries with it the assumption that there is a considerable degree of similarity among households of the same locality, occupation and income grouping. Results of the studies made of time and money expenditure in the home during the last few years indicate the possibility of finding a degree of similarity which would make the

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<sup>4</sup> If proper space and well-arranged equipment had been provided, this trend might not have been obvious.

investigation worth while. In further studies of the varying needs of different types of families, we shall have to keep in mind the needs of the same family at different periods.

One fruitful field for study has to do with the possibility of using rooms for more than one purpose, to lessen the cost of building and of the use of time by the homemaker. Rooms may serve successive purposes; an activity which is of first importance at one stage of a homemaking career becomes a minor one or disappears at another stage. A centrally located room can be successively nursery, study, or room where the adolescent may entertain guests. Also, there are the possibilities of combining functions to the end that each part of the house can be put to use for the maximum number of hours each day. Dining rooms which can be closed are convenient for ironing, sewing, and mending if nearby storage room is provided for equipment and materials.

Much of the information needed by the designer of kitchen storage facilities is not available. He needs to know not only how much of a given type of storage space is used by the average family of the group he has in mind, but he also needs some information about the materials to be stored. What are the conditions as to light, temperature, humidity, and method of storing which are required to prevent deterioration in each of the more commonly used food materials? What is the length of time foods are ordinarily stored in the house? To what extent is the cost of providing storage facilities for food materials justified by the possible time and money saved by buying in quantity? The designer also needs to know the dimensions of the cartons used by manufacturers of the food stuffs as the housewife often prefers to use the food from the original container. Maud Wilson, in an Oregon investigation<sup>6</sup> of dimensions taken of the package goods found in 35 stores in 11 towns and cities scattered over the state, secured data that indicate that storage shelves are too wide and usually are farther apart than is necessary to accommodate package food materials.

An added factor which should be considered in planning the urban kitchen is that certain limitations are placed on work-area arrangement by any condition which necessitates the frequent moving of a family. The present situation in which most, if not all, of the work-area equipment is taken out and moved each time there is

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<sup>6</sup> Unpublished data.



a change of residence makes it impossible to adapt such equipment to an efficient plan of arrangement. For such families, it is important that houses be planned with built-in equipment which cannot be moved.

### Work-Area Requirements from the Standpoint of the Worker

Whatever differences there may be among families in the requirements for work areas, due to social and economic considerations, there are obviously no differences in minimum requirements from the standpoint of the worker except those which relate to her age, physique, or condition of health. The considerations involved in determining these minimum requirements from the standpoint of the worker are four in number.

The *first* requirement is that the health, safety, and comfort of the houseworker should be considered in any set of specifications for lighting work areas, for providing for the temperature of work-rooms, for controlling humidity, for the provision of clean moving air, for safeguards against injury, for an outlook that is at least not repulsive, and for the prevention of fatigue or strain in the performance of tasks.

"The following question is at once raised. How much of fatigue in housework is mental as distinguished from physiological, and how much physiological fatigue is introduced by tensions due to attitudes, emotions, rather than by the motor operations involved? In other words, how important is the question of the variability of mental factors in housework,"<sup>6</sup>

The *second* requirement is conservation of time and energy. With homemakers as well as with many other workers, there is competition between duties; and the ideal of the present day is to cut down on the time required for routine tasks in order that time may be available for those things which are apt to be considered secondary to the demand for food, clothing, and shelter.

The *third* requirement from the standpoint of the worker is that of providing arrangements for meeting dual responsibilities. In the average home of today no help is employed except for such special tasks as laundry work or cleaning; and during the school year, at least, most of the work of the household is done by the homemaker herself. An examination of the schedules of homemakers

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<sup>6</sup> Speck, M. P. *Report of a survey of the literature on fatigue with special reference to the problems of the housewife.* (Unpublished.)

shows that, during the morning hours at least, she usually is carrying multiple responsibilities. Often she cannot drop her work and go out-of-doors with her children, but must content herself with an occasional glance at them through the window. If laundry work is to be done, it may have to be started before her breakfast dishes are washed and completed before the preparation for the mid-day meal is begun. This consideration often is overlooked in the planning of houses. The assumption on the part of the planner apparently is that while one operation is being carried on there is no responsibility for any other.

The *fourth* requirement, which has been overlooked in planning, is that of the space required for the storage of supplies and equipment. It has been assumed that if a work surface of sufficient size were provided, there automatically would be adjacent space of sufficient size and of the right type for the supplies and equipment needed near that center. The most casual consideration of the manner in which the average housekeeper uses her storage space shows that this does not work out in practice.

At the present time the working equipment in the average home is far from efficient. The housekeeper may start her married career with a set of utensils to meet her needs at the time, but at no subsequent time is she likely to have a chance to do more than to purchase an occasional utensil to replace those worn out or to supply a new demand. The investigator will find an accumulation of utensils that are seldom used, but are retained because they are of occasional use or "too good to throw away." It is necessary, therefore, in considering the storage space requirements of equipment, to find out how often each piece is used; at least to the extent of being able to classify it as to whether it is in daily use, whether kept for special use as when there are extra numbers to cook for, or whether it is seldom used. There is sufficient similarity among families of a like social and economic status to make possible the setting up of type plans to meet these situations.

Finally, there has been a disposition to plan working areas so as to segregate the worker from the rest of the family while she is at her task. It is doubtless true that the days of hired help for the middle and lower-income groups apparently are gone forever, and the work of the household is being done and will be done by the homemaker; but our houses continue to be planned on the apparent assumption that between working areas and living areas there

should be definite barriers in the shape of sound-proof and odor-proof walls and self-closing doors, which not only shut out sound and odors, but also shut the worker away from family life. If the life of the family centers in normal fashion about the wife and mother, we are apt to find some rooms of the house used less than they might be, while others are put to uses for which they are not intended. One solution is to plan the work area as an alcove of, or even a continuation of, a large living-dining room where music, conversation, or play may enliven the routine, and where supervision of young children seems incidental to the work being done. Independence in attitude comes early, hence habits of helpfulness must be inculcated early.

### **Educational and Social Values of the Kitchen**

The family's social relationships are becoming increasingly important in developing right emotional attitudes, and the more nearly the young child can feel itself a wanted and useful member of the household the better. The social side of life becomes limited without the family help in the kitchen or in other work areas.

Even the two and three-year-olds should have the satisfaction which comes in cooperative work as well as play. No other part of the work intrigues the child so much as that done in the kitchen. With a kitchen area satisfactorily arranged, it will be possible to allow the child to use the working surfaces provided for adults if stools or steps of satisfactory height are available. This will not demand a larger kitchen, but there should be a place provided, either in one end of the kitchen or near by, for the child's playthings and any special apparatus the child has for helping in the general work of the family. Such an arrangement makes it possible for the child to be happily engaged while still within sight of the mother. Even the two and three-year-old can carry on worth-while, helpful work in the home, thus realizing the satisfaction that comes in cooperative work as well as play.

The importance of education during the first 3, 4, or 5 years of childhood is being increasingly realized. The mother, as the first educator, has the prime responsibility in establishing habits and emotional attitudes in the child. To thus plan the kitchen and other work areas may decrease the efficiency in the use of the machinery of the house, but it makes for a unity in the family



relationships that far outweighs the loss; and with careful thought in planning houses, there may be no loss in this efficiency.

### Summary

A knowledge of the essential requirements for work areas in the urban home is necessary before such areas can be satisfactorily planned and equipped to meet the needs and comfort of the worker.

Many of the factors which govern and influence these requirements such as the following, are dependent upon the income of the family:

1. The quality and amount of equipment which will facilitate work in the home.

2. The amount and type of work sent outside the home which will depend upon the quality and cost of commercial products available in a particular community. As the cost of these commercial products is lowered and their quality improved, there doubtless will be a greater transfer of production from the household to industry.

3. Gainful employment of the homemaker. Where homemakers are employed, some of the areas may become of minor importance, as certain work will be transferred to commercial agencies, but facilities for dispatching quickly the work which is to be done in the home are highly desirable. Requirements for this group of homemakers should receive due consideration as the number of homemakers gainfully employed is increasing. This situation will stimulate a demand upon commercial utilities and also make available more money for equipment which will result in better-equipped work areas.

Although income influences the amount of outside labor used in the home, in some communities such labor is not available.

The size and composition of the family, the location of the home with reference to markets, and the occupation of the wage earner also affect work and requirements.

## RURAL HOME KITCHEN PROBLEMS

### General Conditions

In the rural house the problem will vary according to the specialization of the work on the farm and also according to climatic conditions. In the North, where the long winters make it imperative that the work be done in warmed areas, either there may be

the need of an extra workroom, preferably on the same floor with the kitchen, or else a workhouse near the barns. The expense may be small or great according to the character of the design, but the necessity for such a space is hardly debatable.

Far more attention has been given to the housing problems and needs of the rural family than to those of any other location or occupation group. The studies of the use of time by homemakers made in several states during the past five years are of considerable value as a source of information concerning the household activities carried on in rural homes. Studies made in cooperation with the Bureau of Home Economics of the United States Department of Agriculture <sup>7</sup> do not afford a complete listing of all seasonal and extra tasks. The Nebraska study <sup>8</sup> of the routine and seasonal work of the farm homemaker goes further in this respect. These studies are useful also in that they furnish data concerning the amount of time spent on each activity, which is one basis for judging the relative importance of household tasks, where the limitation of cost makes it impossible to provide adequate working areas for all.

In a few instances, designers have undertaken special studies as a basis for specifications for farmhouses or their equipment. Plans for projects undertaken at the University of Illinois and other colleges on the "Use of Electricity in Agriculture" include field observations of the operation of rural homes. In a study undertaken at Cornell University <sup>9</sup> of the organization of a sewing center for the home, a preliminary study was made of the kind and amount of sewing done in typical families. Deane G. Carter, of the University of Arkansas, surveyed 200 homes in his state in order to arrive at a basis for planning storage room needed in the kitchen. In several states, contests have been conducted in which housekeepers have been encouraged to record their needs and opinions; and their letters, articles, and sketch plans have been used by designers as a source of information on working areas needed by the groups represented by those responding.

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<sup>7</sup> Unpublished data.

<sup>8</sup> Clark, R. M., and Gray, G. *The routine and seasonal work of farm women*. Neb. Agri. Expt. Sta. Bul. 238, 1930.

<sup>9</sup> Cushman, E. M. *Organization of the sewing center in the home*. N. Y. Agri. Expt. Sta. Bul., 492, 1929.

There is a marked tendency to regard the rural home as a common planning problem when, as a matter of fact, farm homes are far from being homogeneous with respect to their needs for working areas. In the absence of any proof to the contrary, it would seem that a classification of farm homes on the basis of the extent and nature of the need for close cooperation between the work in the kitchen and the type of farm enterprise would be advantageous. If the enterprise is conducted on a large scale, other farm buildings than the dwellings are apt to be provided as working centers for its activities, while minor enterprises often utilize parts of the house itself.<sup>10</sup>

A point worth noting is that minor enterprises are apt to be taken on during periods of economic depression and discontinued in prosperous times. A study made in 1931 might present a very different picture of the nature and extent of enterprises on the farm, at least in certain sections of the West, than a study made a few years ago. Shall farmhouses be equipped for hard times?

Another consideration in planning farmhouses for many sections is that the housewife is doing work out-of-doors in garden or on farm for many hours a day, and automatic heating and cooking devices in the kitchen are therefore of particular importance.

A further consideration is the seasonal character of many of the activities of the farm household. The rural housewife needs no larger kitchen, most of the time, than the urban housewife. The farmhouse, however, must provide for services that are not required of the city or village house. The farmhouse is the center of all the farm activities the year around. A continual stream of traffic goes in and out all day long. Most of this traffic will pass through the kitchen unless another traffic way is provided.

When there is no fire kept in other parts of the house, the kitchen may become the dining room; and when times are bad and the cost of fuel is an important item, the kitchen also may become the living room for a short time. Here the small children often are brought to be dressed. It is not uncommon to find the farm

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<sup>10</sup> See *Farm and village housing*. Publications of the President's Conference on Home Building and Home Ownership, vol. VII.



kitchen used as a hothouse, tomatoes or flowers being started or oats being sprouted for green feed for the chickens, or even as a hospital for young chicks, a lamb or a sick pig. Such conditions are now common in many farm homes. It is desirable, however, to provide for these varied operations outside the kitchen space and eventually to plan for them.

The farmhouse, because of seasonal work, must be built to accommodate extra persons at meals and must provide more storage space than a city house, since fruits and vegetables are either stored or canned for the entire winter and groceries cannot be secured so easily from stores.

The lack of city facilities means that the farmhouse must provide storage space for the fuel for cooking, and even for lighting. When running water is available it is advisable to provide some place near the work areas for the hot-water tank so that the heat from it may serve to add warmth to the rest of the house or to dry clothes.

It is an accepted fact that occupants of a city home today would not be without running water, both hot and cold, bathroom facilities, sewage disposal, central heating plant and electric lights. The 1930 census figures show that nearly 85 per cent of the farmhouses still do not have running water and bathroom facilities, and less than 15 per cent of the farm homes even in 1930 can boast of electricity. (*See Table 1.*) The installation of equipment which no city dweller would consider doing without would seem to be one of the first considerations of any housing conference.

### Farm Home Kitchen Studies

The Committee on Farm and Village Housing, during the summer of 1931, made a survey of 2,585 farmhouses in 30 counties in 17 states. Some of the information collected by the committee bears out the foregoing information regarding the kind of equipment found in farmhouses. Out of 2,585 houses, 902 or 35 per cent had running water in the kitchen. In 774 of the 2,585 homes more detailed information was secured regarding kitchen equipment and arrangement. Of the 774 homes 73 per cent were owned and 27 per cent were rented: Built-in cupboards were found in 82 per cent of the kitchens. One per cent had worktables as a

**Table 1. Percentage of dwellings with piped water supply and with electric light**

(U. S. Census, 1930)

Geographic groups	Dwellings with water piped into house		Dwellings lighted by electricity*	
	Number	Per cent of all farms	Number	Per cent of all farms
New England:				
1920.....	74,954	47.9	24,000	15.3
1930.....	79,815	63.9	53,655	42.9
Middle Atlantic:				
1920.....	98,936	23.3	60,102	14.1
1930.....	135,699	37.9	114,098	31.9
East North Central:				
1920.....	134,877	12.4	113,871	10.5
1930.....	211,272	21.9	202,656	21.0
West North Central:				
1920.....	107,015	9.8	97,847	8.9
1930.....	180,402	16.2	146,969	13.2
East South Central:				
1920.....	15,999	1.5	21,720	2.1
1930.....	27,171	2.6	31,952	3.0
South Atlantic:				
1920.....	38,775	3.3	45,407	3.9
1930.....	66,763	6.3	64,173	6.1
West South Central:				
1920.....	49,191	4.9	19,352	1.9
1930.....	88,376	8.0	40,240	3.6
Mountain:				
1920.....	26,343	10.8	25,161	10.3
1930.....	48,324	20.0	49,173	20.4
Pacific:				
1920.....	97,809	41.8	45,160	19.3
1930.....	156,380	59.7	138,394	52.9
United States:				
1920.....	643,899	10.0	452,620	7.0
1930.....	994,202	15.8	841,310	13.4

\* The 1920 figures include gas also.

part of the sink, 43 per cent had separate worktables, and 56 per cent had movable worktables. Seventy-four per cent of the sinks were either enamel or porcelain. The percentage of the kitchens having only 1 window was 20, with 50 per cent having 2 windows, 17 per cent having 3 windows, and the remaining 13 per cent reporting from 4 to 6 windows.

In order to find out whether or not kitchens were well lighted and ventilated, a question was asked on the location of the windows. Were they all on one side, on opposite sides, or adjacent sides? Twenty-eight per cent of the kitchens had windows on one side, 16 per cent on opposite sides, and 45 per cent on adjacent sides. Eleven per cent did not answer.

The problem of food storage in rural homes is one of considerable consequence. Only 37 per cent of the houses in this survey had refrigerators; the remaining 63 per cent had to utilize cold window boxes, pantries, cellars, wells or spring houses, closets, or cupboards for the storage of perishable foods in the summer months.

By far the majority of farm homes in this survey use wood stoves, the percentage being 60 for wood stoves, while 32 per cent have coal stoves. Eighteen per cent of the homes have oil stoves and 7 per cent use electric stoves. (Some families have combinations of more than one type.)

In spite of the law of good routing of work arrangement—which is, if a person is right-handed the drainboard should always be on the left-hand side of the sink—it is interesting to note from the survey material collected that only 24 per cent of the sinks had only the left-hand drainboard, 18 per cent had the right-hand drainboard, 18 per cent had both drainboards, and 40 per cent had no drainboards.

In an effort to learn whether or not the larger pieces of kitchen equipment had been arranged for saving steps, the question was asked if the sink was within reaching distance of the range. It was found that in only 37 per cent of the kitchens was this true. Forty-seven per cent of the homes reported the sink had been placed below the window; and 49 per cent reported the sink had been placed on a blank wall. Fifteen per cent of the sinks were placed in a corner, some being beneath windows and some on blank walls.



In order to secure information as a basis for the standardization of cupboard units for the kitchen, Deane G. Carter, University of Arkansas, surveyed 200 farm homes in Arkansas to find out how much space should be allowed for the storage of utensils, supplies, and equipment in the kitchen cupboards. A rough tabulation of average amounts of supplies and equipment found in these kitchens follows together with Mr. Carter's comments on storage conditions:

Flour (lbs.).....	49	Coffee pot.....	1
Meal (lbs.).....	25	Tea kettle.....	1
Sugar (lbs.).....	25	Dish pans.....	2
Salt (lbs.).....	10, 25	Mixing bowls.....	2
Package goods (items).....	10	Cleaning supplies	
Spice and extracts (items).....	6, 7	Packages .....	6
Towels, aprons, etc. (pieces)	35	Soap (bars) .....	10
Chinaware and dishes (pieces)	69	Brushes .....	3
Silverware (pieces).....	23	Tools with handles.....	3
Stove utensils (pieces).....	20	Canned goods, approximately	
Flatware, knives, etc. (pieces)	8	(cans) .....	200
Small tools.....	8		

"There are some things in storage that suggest the need for more storage space than is usual in the town or city kitchen. For example, a considerable number of people purchase flour in 200-pound barrels which is obviously a quantity that cannot be stored in the kitchen."

Maud Wilson, Oregon Agricultural College, reports, in a preliminary study of housing requirements of 25 farm households in Willamette Valley, Oregon, that cakes and pies are still baked in all of the homes but one, while bread is purchased by a few of the families. Fruits and vegetables of all kinds commonly grown in the section are canned at home. Butter is purchased, but lard is rendered at home. These farm homes accommodate four or five people the year around. There must be equipment (perhaps borrowed) and space for serving as many as 30 people on special occasions. This preliminary study showed that the breakfast menu was a substantial one at which time a cooked cereal usually was served. For dinner 78 per cent of the homemakers served meat, potatoes, and at least one cooked vegetable. For supper 91 per cent of the homemakers served warmed-over foods from dinner. Translating this information in terms of the require-

ments of stove space for preparation, it was found that the maximum burner space needed was three burners and an oven.

These data are entirely too meager upon which to base any definite statements as to requirements for the working or storage areas of the farmhouse, but they do give us some indication of the problem we are facing in storage needs and a procedure for working out typical storage requirements.

### **Requirements for Work Areas in the Farmhouse**

In the general committee report on requirements it has been indicated that the house must be planned to take care of these important functions—food preparation, laundering, sewing and mending. The requirements for the rural dwelling from the standpoint of sewing and mending will not differ from that of any other home. When, however, we approach the problem of the requirements in planning work areas for food preparation in the farmhouse, we find some variations.

During the past decade there has been a decrease in the amount of canning, butchering, preserving, and baking in the farm home. During this last year, due to economic conditions, some of these activities have been reappearing. But probably the general future trend will be towards equipment and arrangement that will take care of less work of this kind rather than a greater amount.

It is not conceivable, however, that these activities will disappear entirely from the farm home. Therefore, work areas must be planned in relation to the special functions which will probably continue to be carried on—namely, that of the care of milk, the care of eggs, canning, baking, and some phases of butchering; and storage facilities will need to be provided for large quantities of materials.

### **Conclusions**

The requirements for the working areas for the farmhouse may be summarized in the following statements:

1. Since the rural homemaker is assistant manager when her husband is in the fields, there should be a clear view from the kitchen windows to the farm buildings and the approach to them.
2. The entrance used by guests or business visitors should be close to the kitchen to save steps.

3. There should be a direct passageway from the rear entrance to the dining area to eliminate the need of others passing through the homemaker's work area when she is preparing meals.

4. There should be a place for the men to wash outside the kitchen work area.

5. A rear workroom or entry hall just off the kitchen to provide storage for outer wraps, separator (when it has to be in house), wash place for men, and laundry would facilitate the work within the farmhouse.

6. Laundry space should be provided for the majority of farm homes. This space should take care of the washing machine, tubs, and other equipment, when not in use; and the house should provide space for drying clothes in inclement weather.

7. Special tasks such as butchering, canning, candling eggs, and food preservation make it necessary for the farmhouse to be provided with storage space for the storage of this special equipment and space large enough to carry on these tasks.

8. The distance from shopping centers may make it necessary for the farmhouse to be provided with storage space for large quantities (i. e., 100 lbs. flour and sugar) of staples.

9. Since the average farm grows its own vegetables and fruits or these are purchased and stored for the winter months, storage facilities either in the house or connecting with the house must be included in any adequate farmhouse plan. There should be an entrance direct from the outside to the storage place for vegetables and fruits.

10. There is need for painted or easily cleaned walls, comfortable floor surfaces easily cleaned, woodwork finished with materials that will be impervious to dirt and grease. The dark farm kitchen of past years needs to become a bright, cheerful kitchen by the wise choice and use of color.

11. The business of the farm usually is transacted in the farmhouse. There should be set aside near the working area a place for a desk, preferably reached without going through the kitchen, either in the dining room or in the living-dining room.

12. If there is a bathroom, it is well to have it on the first floor unless there is a place for the men to wash in the rear hall or entry room.

13. The working area should be supplemented by an added area used for entertaining and feeding threshers and hay men. The laundry area may be equipped for this use.

14. Special equipment such as for wood storage and for draft cooler may be provided.

15. The rural homemaker assists with garden, poultry, and dairy-farm activities. The equipment in work areas should be arranged with special thought to the conservation of time and energy to be released for the outdoor activities that may add to the cash income. This routing would be no different from that in any other home.

16. Of all the requirements listed, the one that stands above all others is



the need for equipment comparable to that now enjoyed by city people. This equipment must be installed at minimum cost, but should be of good material.

There is a tendency of the older generation, particularly men, who now live in cities to remember their childhood days in farm kitchens with nothing but pleasure. These men talk of the social values of the large farm kitchen where men folks gathered to visit, while the mother and the girls prepared the meal. They look askance at today's suggestion of a small farm kitchen planned to save the time and energy of the homemaker. If these people who remember only the glories of the large farm kitchen should have to work in it day after day, they would find that extra steps and fatigue do not compensate one for the enjoyment one secures from using the kitchen as the family gathering place. Living rooms today are used for this purpose.

## CHAPTER VIII

# WORK-AREA PLANNING AND ARRANGEMENT

### SIZE OF WORK AREAS

Studies made during the past summer in the eastern cities where multiple dwellings and row dwellings abound, show a marked movement toward the installation of the tiny kitchen or the kitchen including a dinette area. The average dimensions were 7 feet by 9 to 11 feet where the kitchen was used for food preparation only. The kitchen alcove as part of the living room was  $4\frac{1}{2}$  feet by 9 feet. Variations are slight except where the kitchen includes a dining alcove. In the latter case the size of the kitchen varies in width from 6 feet 10 inches to 8 feet, and in length from 16 to 18 feet. State studies by extension workers indicate that in rural kitchens in 3,857 dwellings nearly 50 per cent of those studied had a floor space 13 feet by 14 feet; nearly 24 per cent had kitchens 10 by 22 feet or less; and 26 per cent had kitchens whose size was somewhat between the larger and the smaller. A study made in Michigan rural houses showed that 100 square feet is a fair standard for the kitchen area. The increase in floor area increases the cost and decreases the sanitary conditions necessary to food preparation.

Studies in European countries show an interesting relationship between the areas allotted to the kitchen, and kitchen and scullery, and to the entire house. In Holland apartments, 10 per cent of the entire floor area is given to the kitchen. In separate dwellings, 20 per cent of the first floor area is used. In Frankfort, the kitchen occupies 13 per cent of the floor area, while in London the kitchen floor area includes 8 per cent in apartments, but 15 per cent in three-bedroom houses where the space includes the living room, scullery, and larder.

In the apartments in this country the dining alcove is usually the only dining space. Too frequently it is located so as to cut off all natural light from the food preparation unit and prevent adequate ventilation. Its supposed convenience has made a great appeal, and many single-family dwellings contain either a dining

alcove or a folding dinette in the kitchen interfering frequently with any efficient arrangement of the kitchen work space. In single-family houses these too often supplement rather than replace a dining room, which is reserved for formal occasions scarcely justifying its cost. On this point Maud Wilson believes that:

"Whatever may be said about the desirability of eating family meals in the dining room for the sake of keeping up standards, the planner must take into consideration the place where families of similar social and economic status prefer to eat their meals. Nowadays kitchens are made so attractive from the standpoint of color, and they are so readily kept clean, that the kitchen is usually as attractive as any other room in the house. In fact there are many homes where the kitchen is actually the most attractive room in the house. In view of the fact that the average home employs no help, it is small wonder that we find on the part of families a strong tendency to eat all meals in the kitchen except on special occasions, as when there are guests. Obviously the kitchen which is also used for family meals will be planned very different than that which is used for the preparation and storage of food only. Also dining space in the kitchen which is used for the serving of all every-day meals needs to be more commodious and comfortable than that intended for the serving of breakfasts only."

The committee recommends that when dining space is included, such space should be provided in such a manner that it will not interfere with the kitchen work space, that it should be adequately ventilated, and that it should not duplicate a dining room, or increase the difficulty of serving in a dining-living room combination. The committee believes that when kitchens are planned to simplify food service in dining room or dining-living room, and central heating is available, the dining space in kitchens will not be necessary.

## KITCHEN PLANNING

In order that kitchens may be planned in terms of the processes to be carried out in them, advantage has been taken of the various studies that have been made. To set up requirements to be met by each of these kitchens, the equipment has been selected and arranged with the following needs in mind.

Kneeland listed the fundamental requirements of an efficient kitchen as follows:

"First, the efficient kitchen requires a separate working surface for each kind of work to be done. In the preparation of meals this means a separate serving table as well as the usual worktable or cabinet for mixing and



preparing raw foods. And in the clearing away of meals, it means separate surfaces for stacking soiled dishes and for draining. There is no place in the efficient kitchen for the general utility table, where mixing bowls and salad plates, soiled dishes and clean are jumbled together in hopeless fashion.

"Second, the efficient kitchen requires the arrangement of large equipment in a step-saving sequence. The briefest analysis of the work of the kitchen reveals a repeated order of work; we collect raw food, prepare it, cook it, and serve it; we remove soiled dishes, scrape and stack them, wash, drain, and put away. This obviously gives us the key to the placing of equipment on the floor-plan: for the preparing process, first the refrigerator and food cupboard, then the cabinet, then the stove, and last the serving table; and for the clearing away process, first the stack table, then the sink, then the drainboard, and last the shelves for china.

"In the preparing sequence, we can work either toward the right or the left, but we must end at the dining-room door. In clearing away, however, we must always work toward the left—provided we are right-handed. For each dish or utensil as it is washed is held in the left hand, and if the drainboard is on the right of the sink, we must cross the left hand over the right with every piece that we put down. The only place for a sink with a right-hand drainboard is in the home of a left-handed worker or in a museum devoted to displaying the tangible evidences of human folly.

"Third, the efficient kitchen requires a compact working area. This means the arrangement of large equipment along the walls in a nearly continuous working surface on either side of the dining-room door, leaving just enough room in the center for the worker to move easily about. It means windows placed above the work surfaces, and doors, closets and equipment not used in preparing and clearing away meals grouped at the other end of the kitchen. It usually also means an oblong kitchen, with only a few feet across from the cabinet to the sink, and a total floor space for the food work of not far from 100 square feet.

"Fourth, the efficient kitchen requires the placing of equipment at convenient heights from the floor, so as to minimize as far as possible the necessity of stooping and stretching. This is, perhaps, our most difficult problem, and one which calls for further study. For there is no agreement as yet as to the most convenient height for even the average worker, and the height which is convenient for the short worker is, of course, too low for the tall one. Since we cannot standardize the height of housewives, we must find some way of making the height of our working surfaces adjustable. Meanwhile, with the average worker in mind, we can place the sink and the worktable several inches higher than they usually are now placed.

"Fifth, the efficient kitchen requires the grouping of small equipment around the working center where it is usually used first. This means the abolition of the general utility cupboard or closet and the building of shelves and other storage space in almost continuous series above and below the various working surfaces."<sup>1</sup>

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<sup>1</sup>Kneeland, H. "Abolishing the inefficient kitchen." *Jour. Home Econ.*, 21:475-481, July, 1929.

## KITCHEN ARRANGEMENT

For each of the types of kitchens selected, the probable activities have been analyzed to determine needs in terms of work surfaces, size and height, storage needs for materials and equipment, water demand, and the relation of water supply to stove, serving table, food storage, and waste disposal. In some cases the demands of the various activities have been conflicting.

In determining efficient arrangement the usual criteria have been time required for doing the task and the number of steps taken. Time is easily measured. The kitchen plan included (Type 3, p. 179) has been rated in terms of the time necessary for specific tasks, and steps as measured by pedometer or pin-and-string method.

The various tasks have been checked. Since clearing away and dishwashing are common problems they have been given special attention. Time studies of dishwashing by various workers have been summarized. Heiner<sup>2</sup> has made a special study combining time records with a movie film to develop fundamental points in sink design. These seem to show that time as determined by worker with a stop-watch is the most satisfactory measure of kitchen arrangement and order of work. A special record blank has been prepared to combine time and steps taken in different kitchen jobs. Such records require the presence of an observer.

The movie film was shown to be of the most value after time-and-step studies have been used to plan the kitchen arrangement. The "slowed-up" film will make it possible to analyze the movements of the worker and help in the elimination of unnecessary effort. The steps required for any task are determined by transferring to a scaled plan the record of work, using pins to locate places of work and strings to indicate the steps taken. By varying the color of the string in accordance with the grouping under which the activity comes, a more easily visualized picture results.

The following suggestions as to arrangement have been tentatively reached:

Sinks should be installed with drainboard to left and flat surface or drainboard to right, both at height of top edge of sink. There should be space in front of left drain for wheel tray to hold

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<sup>2</sup> Study made by Mary Koll Heiner, University of Chicago, as part of the committee's work.

scraped dishes ready for washing, since some workers find it more convenient there than to the right. There should be knee room under the sink itself.

The space above the sink should be available for shelves for the storage of cleaning materials, and a wider shelf for the storage of cereal, double boiler, coffee<sup>3</sup> and coffee pot, tea and tea pot, cocoa and cocoa pot. Small utensils used at the sink, such as dish scraper, paring knife and egg beater, should be hung within easy reach.

The sink should be well lighted with a window preferably in the wall at right angles; if on the same side do not place directly over the sink unless there is some protection from glare. Artificial light should be so placed and of sufficient height to light well the work at the sink without throwing a shadow.

If dishes are to be stored in the kitchen, the storage should be above the drainboard or within reach of it. Dish storage accessible from both kitchen and dining room saves steps. In this arrangement the sink must be on a common wall between the kitchen and the dining room or on a wall at right angles. When dish storage is not possible in either of the above places, the use of a wheel table is desirable. Store only occasionally used dishes in the dining room.

The stove should be at right angles to the sink, or directly across if the kitchen is narrow. A small preparation surface or table (which may be movable) should connect with the stove (burner portion) at the same height as burners, and if near the dining-room door or pass cupboard, it can be used as a serving table. A shelf above this for a bread box and board is convenient for preparing bread for toast or table service.

The worktable should be used for long mixing jobs, such as baking, cake making, dessert, etc. The working surface should be low enough to permit work while sitting, and provide for knee space below. Supplies should be within reach of the worker so seated. The worktable should also be near the refrigerator and stove.

A place for vegetable storage should be provided underneath

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<sup>3</sup> In case coffee is not made at dining table.



the drain or cabinet at the left of the sink. This should have outside ventilation, controlled to prevent freezing.

The refrigerator should, from the point of view of use, be as near as possible to both worktable and stove. It must be remembered that the higher the surrounding temperature the greater the cost of operation of the refrigerator. In most cases the housewife prefers convenience at a slight increase of expense in operation.

### **Types of Kitchens—Square, Oblong, and Rural Farm-Kitchen Types Showing Partition Wall\***

A general analysis of work area may be shown in five typical kitchens and one workroom which, it is believed, will show how the above principles work out in actual practice.

#### **TYPE 1. THE WALL KITCHEN**

The wall kitchen, which is usually found in the one-room apartment planned for one or two adults who regularly take one or more meals outside, provides for the preparation of breakfast or other simple meals. Those meals prepared in this kitchen necessitate little preparation, practically no baking, and as much of the food as possible is purchased ready prepared. If such a kitchen is included in a small house and so located that ready-prepared foods are not available, the preparation of these foods usually is very simple. In either case, a low oven or detached burners with a portable oven may be used, especially if there is need to conserve space. This kitchen is recommended only where the greatest economy of space is necessary and then only if the section can be entirely separated by sliding or folding doors, or there is such adequate ventilation that the steam and odors do not penetrate the living portion of the house.

The equipment needed in this type of kitchen would consist of the following pieces:

1. Small sink near stove and dish cabinet.
2. Small cabinet for storage of dishes, silver and linens.
3. Shelves or wall cabinet above sink and stove for the storage of staple

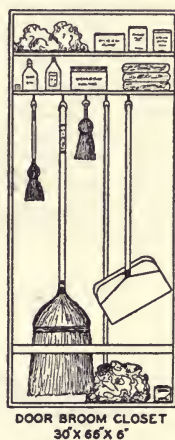
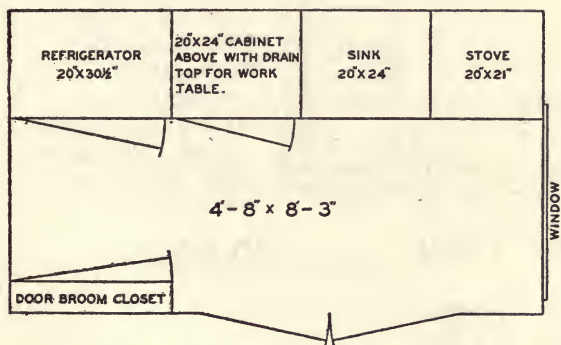
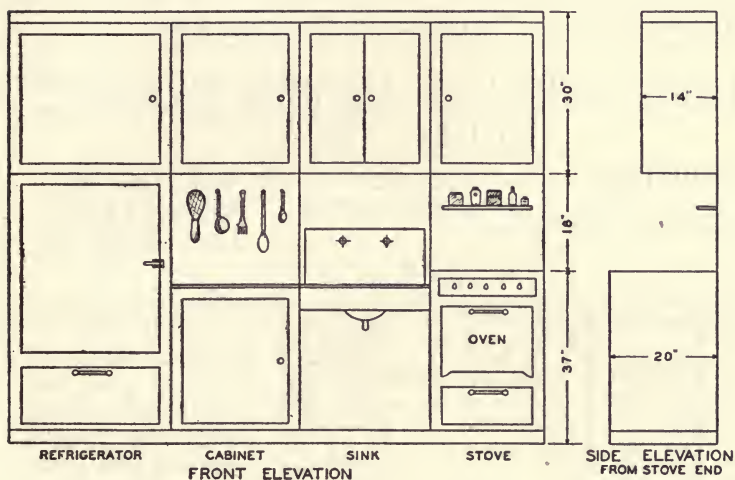
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\* The committee is not unanimous in its opinion on all floor plans appearing on p. 178-182.

foodstuffs, such as cereal and coffee, and the utensils needed in their preparation.

4. Three-burner stove, with low oven, or a two or three-burner plate and portable oven. If a plate is used, a counter must be provided with space beneath for storage of the portable oven.

5. Refrigerator placed near cabinet and sink where foods from the refrigerator may be prepared. With this arrangement, foods coming from dining table may be conveniently stored again in refrigerator.

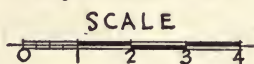


### TYPE 1 THE WALL KITCHEN

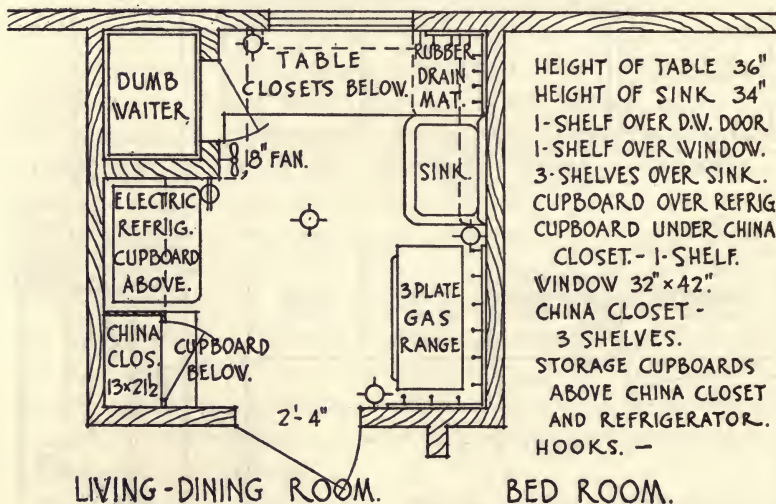
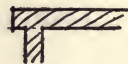
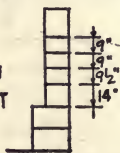
TO VARY AND FOR ADDITIONAL WORK SPACE, ADD SINK WITH DOUBLE DRAIN OR 15 INCH WORK SHELF BETWEEN STOVE AND SINK WITH CABINET SPACE ABOVE AND BELOW.

## TYPE 2. SQUARE TYPE

The size of a kitchen must satisfy the needs of the family without allowing for excessive space. The square kitchen, approximately 7 feet by 7 feet, where one worker may prepare the meal, serve it, and remove and clean the dishes with the minimum of steps (as all the storage and working areas are within reaching distance), may be sufficient for the town dweller, either in the single or multiple dwelling, providing the meals are served in the kitchen-dining room or in the end of the living room.

LAYOUT FOR HOUSE OR APARTMENT KITCHENETTE.  
SQUARE TYPE.ROUTING-  
LEFT TO RIGHT.DIMENSIONS-  
WIDTH-6'0" TO 7'1½"  
LENGTH 6'2½" TO 7'2½"

A.L. MARLATT.

SECTION THRU  
CHINA CLOSET

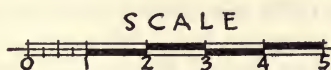
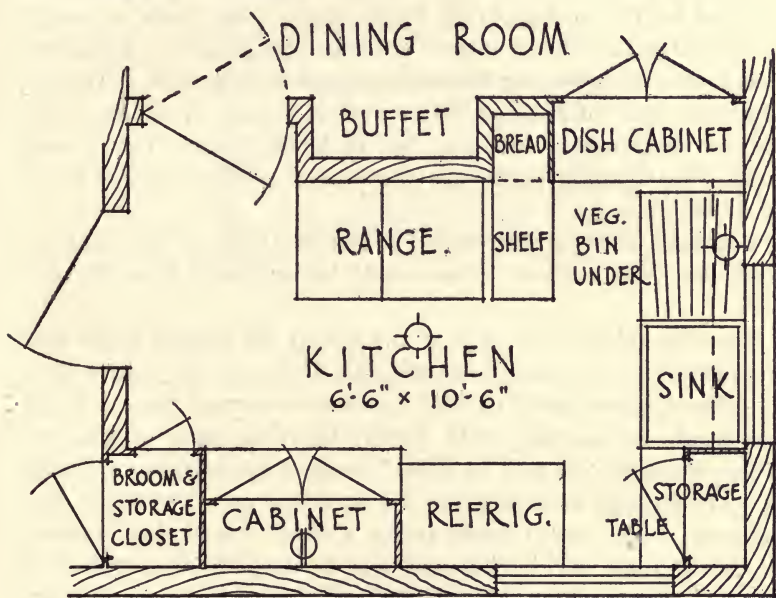
Type 2. Square Type for house or apartment. Plan includes dumb-waiter which is frequently used in apartments without elevators.



If space is expensive or rents high, the better plan is the combination room or oblong type.

### TYPE 3. ONE-FAMILY HOUSE KITCHEN. OBLONG TYPE.

In the separate house more space is required. The routing of steps has been carefully followed through, concentrating the work of preparing, serving and clearing away a meal into as few work centers as possible. The short operations for the most part have been centered around the sink and stove, which are arranged at right angles to each other. Planned arrangement indicates that additional space should come in the length and not in the width, thus making a rectangular kitchen.



Type 3. One-family house kitchen. Oblong type.

The utensils and materials used in the short operations are grouped at the work space where needed. For example, the preparation of coffee or cereals first takes place at the sink; thus the food supplies and utensils used for such operations are placed on a shelf above the sink or in a cabinet directly to the side of it.

The bread box is placed on the wall over the work shelf at the right of the stove. The bread, when sliced, is placed on cooky sheet, then into the oven for toasting, or it may be placed on plate and passed through china cabinet for table use.

Such utensils as pot tops, skillets and cooky sheets are filed in drawers beneath the stove. Cutlery used at the stove may be hung near by or placed in drawer beneath the work shelf.

The placement of the refrigerator and cabinet is interchangeable. If the refrigerator is placed nearer the sink, supplies may be easily secured; however, a wheeled tray or utility tray may be used to bring supplies to the sink and cabinet.

Most of the work centered around the cabinet is of long operation and for the most part calls for the use of such foods as usually are stored in the kitchen cabinet or in the refrigerator. These two pieces of equipment are therefore placed side by side. The refrigerator also must be placed conveniently near the dining room for the securing of foods or for replacing foods from dining table. Refrigerator dishes are stored on a shelf or cabinet above the refrigerator.

Vegetable storage is provided for at the right of the sink beneath the work surface. This should be ventilated from the outside.

The dish cabinet is located at the left of the sink in order that the dishes may be taken from the dish drainer at the left of sink and placed immediately in their permanent storage place. From here bowls for serving foods directly from the stove or sink are easily accessible and may be passed through the cabinet, or placed on a wheeled cart at the right of the stove and conveyed to the dining room. The dish cabinet forms a closer connection between the dining room and kitchen and may be used for the serving of the entire meal. It may be closed by double doors on the dining-room wall, but open shelves are more convenient in the kitchen wall.

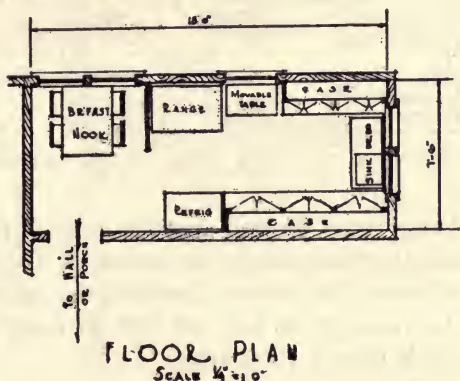
The test made of this arrangement showed preparation time to be 12 minutes and steps taken 6 to 8; the service time to be 8 minutes and steps taken 4 to 6; the clearing time to be  $13\frac{1}{4}$  minutes and the steps taken 7 to 9.<sup>4</sup>

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<sup>4</sup>The individual factor of "time reaction" as well as length of step will cause a wide variation in totals. The range of step taken is from 18 inches to 24 inches.

## TYPE 4. COMBINATION KITCHEN AND DINING ALCOVE

This oblong kitchen with the alcove dining room should not be narrower than 7 feet, so as to utilize all the wall space for built-in equipment and still provide free standing space for the worker. The work area, not only for the sake of light but for better sanitation and ventilation of the area, should be at the window end of the oblong kitchen, the dining-alcove area being in the section nearer to the other rooms of the apartment or the house as the time spent in it is relatively short.



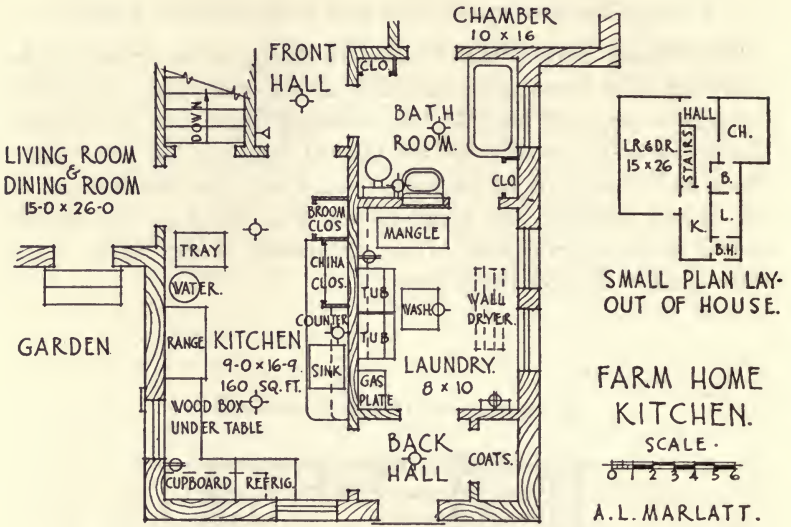
A KITCHEN PLAN  
H.E. WICKERS ARCHT  
K.S.C.  
MANHATTAN KANS

## TYPE 5. RURAL KITCHEN

The rural kitchen, in which other industries than food preparation and serving are carried on, may need larger floor area; but the work area should be compact or there should be work areas planned for special types of work. The suggestion of a separate workroom near, or opening out from the kitchen, has been made. This room could be used as a laundry, as a milk-utensil washing area, and as a washroom for farm workers. It may be used also for emergency cooking and for canning fruit and vegetables.

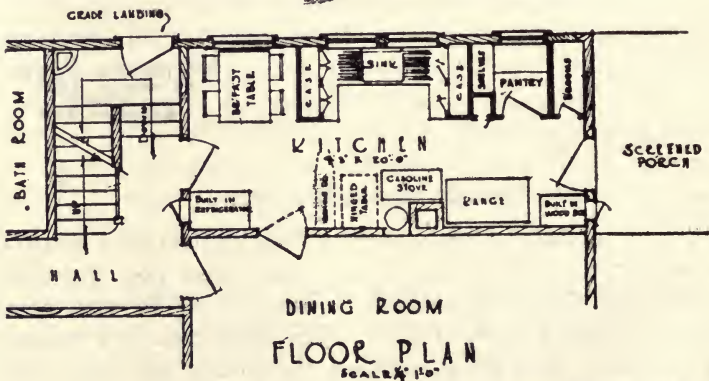
The cost of installing plumbing equipment is so high that if the





Farm home kitchen plan showing equipment and work-area arrangement.

main house drain could be in a partition wall so that all connections are short, the cost would be somewhat reduced. For example, the bathroom, the laundry, the sink, the hot-water tank and pipes could be arranged on two sides of an inner partition, thus reducing possible danger from frost.

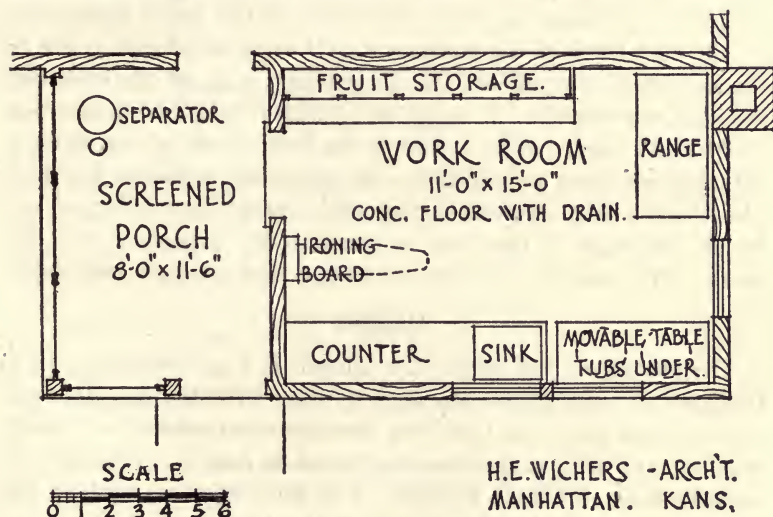


A KITCHEN PLAN  
SUGGESTED BY W.C. WARD  
KANSAS STATE COLLEGE  
D.E. WICKES ARCHT.  
K.S.C. MANHATTAN KANS.

Work-area arrangements in the farm home kitchen differ somewhat with those of the urban home kitchen.

TYPE 6. WORKROOM DESIGNS <sup>5</sup>

Suggestions received from various sources indicate the need for a workroom, particularly in rural areas. In this workroom might be located the laundry. The stove might be used for any necessary baking, and the canning of fruit and meat products might be carried on here. This room also might serve as a fruit storage room. The difficulties encountered are numerous, chief of which is the cost of an additional room; but opposed to this difficulty is the argument that the kitchen itself could, under these conditions, be smaller and more convenient, and all laundry equipment could be removed entirely from the kitchen. If such a room were inexpensively finished, the cost of building might be less than the cost of housing these necessary operations in the house itself.



Arranged for separator on screened porch. (Separator should not be cleaned where laundry work is done.)

In farmhouses, this room might be connected with, or even house, the milkroom, washroom, shower, or work clothes. It is advisable to have such a room directly connected with the house.

Much study needs to be given the problem of the workroom, as it may solve some of the questions that appear when the basement is impossible or impractical for use. A suggestive design has been included.

<sup>5</sup> Design prepared by H. E. Wichers, Manhattan, Kansas.

## CHAPTER IX

# EQUIPMENT AND STORAGE REQUIREMENTS

### EQUIPMENT

Certain equipment is required in every kitchen—a stove, water supply usually combined with drain in form of sink, worktables or work surfaces, and adequate storage suitably located and arranged—all in sizes and forms adapted to their functions. A tentative study of available equipment in relation to needs has been made with reference to desirable changes in design.

This equipment is available at different cost levels with great variety in size, quality, and finish. The arrangement recommended for efficient work in the kitchen is the same, irrespective of the cost level of the equipment. It is believed that many of the factors of convenience can be provided without excessive cost through wise selection of equipment which is arranged in the most satisfactory way. More attention has been given in this study to arrangement than to selection. In selection, emphasis has been placed on a size adapted to the needs rather than a larger size which, although it may not be much more expensive, will require extra space and make convenient arrangements impossible.

### Ranges

The placing of the range in a kitchen is more important from the point of view of the efficiency of the work area than its type. On the other hand, the type does determine the amount of space it requires, and with ranges burning wood or coal it is necessary to provide space for fuel storage. The floor area covered by the range will vary with its design as well as the type of fuel it requires.

The following are usual designs of ranges:

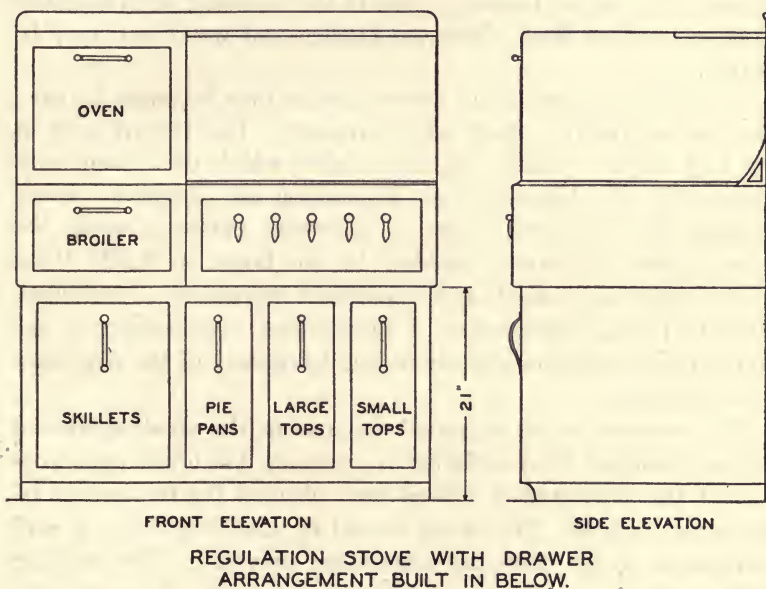
1. Oven below, burners above.
2. Ovens and burners on the same level.
3. Burners with oven above burner area.

The space occupied by gas or electric stoves should be, in the first and third cases, approximately square, while the second type with the oven placed at the side of the burners, requires an oblong space. Oil stoves are now developed in practically all the above types, though the more usual one to be found occupies even less



space. A coal or wood stove must be provided with a flue and requires a space approximately square or oblong.

Since the studies made with the low-income families in Chicago<sup>1</sup> showed that the oven was used so rarely, it suggests the possibility of using the more compact stove with a small, low oven. The number of heating units used for cooking is usually four to five burners and one simmer unit. Wilson reports that six are desirable for the country home but experience with the small city apartment shows that when properly arranged three are enough for small families.



In the rural study referred to above, it was found that the oven was used for baking in nearly all the rural homes. Even though there appears to be a trend towards the purchase of bread in the rural communities, the oven is still needed and should be located as conveniently as possible. This points to the necessity for a larger stove in rural than in urban homes.

The selection of the range for rural homes is limited by the fuels or sources of heat available. They may have a choice of wood, coal, oil, bottled gas and electricity. Wood and coal in-

<sup>1</sup> See p. 156.

crease dirt, are inconvenient because of storage problems, and demand greater space, although they have the advantage of being used as auxiliary sources of heat in adjacent or superimposed rooms. Oil stoves are used frequently. They are efficient if well made and cared for. Often in rural kitchens both types of ranges or stoves are used, varying as to seasonal needs. This demands more floor space in the kitchen area. Electricity, or gas if available, should be suitably installed to meet the code requirements, and the outlets should be placed at strategic points to meet work-area needs. It is recommended that in new dwellings provision be made for central heating, either in the basement or in a central area on the first floor where the kitchen and water also may be heated.

In small-town and urban homes, choice may be made between gas and electricity. Both are convenient. The relative cost of the two varies. Studies on this subject which have been summarized by the American Gas Association are available. These indicate that 1 kilowatt hour of electricity performs about the same service in typical cooking in the home as 8,200 B.t.u. These studies are based on 19 published reports by Government bureaus, testing laboratories of universities, combination of gas and electric companies and the testing laboratory of the American Gas Association.

The compact stove suggested for use in the small-apartment kitchen indicates the possibility of replacing the lower open portion of the stove with a cabinet base planned for the storage of the stove utensils. This stove should fit snugly against the wall and extend to the floor, toe room being provided. The building code requirements on fire protection must be met. In small units set in as a standard wall kitchen, the stove, cabinet, sink and refrigerator are built in as one, saving space; but this is expensive and needs to be carefully ventilated to make its use comfortable.

The committee feels that the small house should be benefited by standardizing that area which the stove should occupy in a kitchen and that stove manufacturers should be encouraged to meet these requirements in size and form. A range should be connected with the floor in the same way the baseboard connects with the wall. There should be no free space under or back of the range to collect dust and dirt.







An essential work area requirement is space for the storage of supplies and equipment.



The draining surface of the sink, if there is but one, should be located at the left. A spray on a separate mixing faucet is desirable. Architect: Edwin H. Lundie, St. Paul, Minnesota.

## Sinks

The one piece of equipment which undoubtedly contributes most to convenience is the sink piped with hot and cold water and supplied with drain. Practically all housewives indicate it as the first item they would like to have added to a house without modern conveniences.

Sinks come in several materials and many sizes and designs. The most used material for a kitchen sink is enameled iron. It is reasonable in price, easily cleaned, and durable. Pottery sinks are available; but they are more expensive, heavy, and difficult to install. With the development of the new alloys of nickel, promising designs are being developed in this material, but they are as yet out of the price range for the low-cost house.

Sinks offer a problem that is difficult to solve. Some work has been done by way of suggesting a design, for the type of kitchen with which the committee is most concerned, that could be manufactured and sold under the \$20 price limit. Of course, most of our hope is based on the probability of lowered cost by means of mass production of a few standard types, as well as the use of new and less expensive materials.

There are many designs of sinks on the market. Since the average home can afford only one sink, it must be an all-purpose sink, that is, serve the needs of the kitchen for the preparation of vegetables, source of water for stove and foods, and the washing of kitchen and table dishes. All these demands can be met by a sink which is adapted to the needs for washing table dishes.

For dishwashing, the size of the sink itself is important. Heiner, after a series of controlled studies in which a dish pan was used, suggests 18 inches by 22 inches by 6 inches. The sink used had a double drainboard with an over-all length of 60 inches. As either the depth or the height of the sink increased, the time required for dishwashing increased.<sup>2</sup>

Many housewives prefer to wash dishes directly in the sink. In that case it is important to have a sink that is not too large, unless the hot-water supply is unlimited. A draining surface should always be located to the left. A surface on the right of the sink where dishes to be washed may be stacked is desirable,

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<sup>2</sup> Study made by Mary Koll Heiner, University of Chicago, as part of the committee's work.

since some workers find it more convenient than at the left. The space above the sink should be available for shelves for the storage of cleaning materials, the cereal and double boiler, the tea and teapot, the cocoa and cocoa pot. Small utensils used at the sink, such as paring knives, should be hung within easy reach. The height of the back depends upon the type of faucet and whether or not the sink is located under a window. The faucet should be high enough to permit easy filling of the vessels.

The more costly sinks are manufactured in one piece. These are the most desirable, since it is difficult to make a sanitary joint. These more costly sinks have an apron across the front which adds to the appearance. This is an objectionable feature unless it can be so built that it slopes in, since it makes it difficult for the worker, if sitting on a low stool or chair, to get her knees underneath. A roll rim across the front with bowl sloping from the front makes a less costly and more satisfactory design.

The cheapest sinks are those with a flat rim. These can be used satisfactorily if installed in a wood table top. Such a sink could be used as a wall sink if set in a linoleum-covered table with linoleum on the wall behind it, and the joining made with a waterproof cement and finished with a metal strip.

Next in price is the roll-rim sink with one-piece back. It is difficult to fit such a sink onto a drain satisfactorily. The roll-rim sink with attached back and one drain offers the same difficulty in combining with a worktable as the sink without a drain. There is a demand for a flat-rim sink with attached back and drainboard to the left.

In the more expensive houses an added convenience is a dish-washing sink in the pantry. In this case the kitchen sink may be somewhat smaller. Studies show a spray desirable here, preferably on a separate mixing faucet. A double sink fitted with a dish drain is also a convenience. The faucet spray may adequately take the place of the extra sink in rinsing. Study should be directed towards developing a sink which has a continuous drainboard and table top that becomes a part of the cabinet.

### Refrigerators

The refrigerator or ice box should, in considering its use, be as near as possible to the worktable and stove. E. B. Lewis of Nebraska states:



"From observations to date it is apparent that the refrigerator with the compressor unit installed in the cabinet below the food storage space can be confined tightly at the sides, provided at least one inch space is provided at the rear of the box and a spacing of six inches is provided above for air circulation. Any restriction in these spacings was reflected in a material increase in the electrical energy used and a slight increase in temperature inside the food compartment.

"With a refrigerator having the compressor unit on top of the cabinet, no appreciable effect was noted as the clearance decreased. Slight increases of temperature inside the food space were noted when clearances became slight. When these clearances were at a minimum and a muslin curtain was hung in front of the opening and in front of the compressor unit, an extremely high rate of electrical energy consumption developed, completely disrupting any normal operation."<sup>3</sup>

The committee feels that there has been a tendency to increase the amount of refrigerator space available, sometimes at the expense of the temperature. It recommends that for the kitchens which must be equipped at a minimum cost, a well-designed, tested, and certified ice chest be used which will safeguard the temperature of such foods as milk, meat, etc., which spoil readily and are likely to be harmful when spoiled. Chests providing satisfactory storage space for these foods may be had at from \$12.50 to \$15. These can be supplemented by built-in draft coolers for storage of the more bulky foods. As the amount of money available for kitchen equipment increases there is a choice of electric, gas or oil refrigerator cabinets of varying sizes. Satisfactory temperatures may be obtained with either ice or mechanical units. Cabinets should be selected on the basis of food storage space. There should be a guarantee that they will maintain a temperature of 45 degrees or below in the milk compartment, with an average of not over 50 degrees in the remainder of the food compartment, and there should be a statement of the ice consumption of such refrigerators or cost of upkeep of mechanical units under standard test conditions.<sup>4</sup>

### BUILT-IN CABINETS AND STORAGE PLACE

Adequately and suitably arranged storage space is essential in work areas. Many of the modern apartment houses have quite adequate storage space, but it is often badly located, and planned

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<sup>3</sup> Lewis, E. B. *Preliminary report on refrigerator study*. Neb. Univ. Agri. Eng. Dept.

<sup>4</sup> See *House design, construction and equipment*. Publications of the President's Conference on Home Building and Home Ownership, vol. V.

without reference to location or size of the particular article it is to house. In general, it may be said that in these places storage is inconveniently arranged in the higher-priced houses, and in the houses available to those of low-income levels there is too little storage or none at all. The committee wishes to emphasize particularly the point brought out by Kneeland: "This means the abolishing of the general utility cupboard or closet and building in shelves or other storage spaces in almost continuous series above and below the various work surfaces."<sup>5</sup> These must be planned to house within reach of the worker those articles most frequently used. Less accessible places can be used for articles least frequently used. On account of the importance of this problem, two groups of the committee have given special attention to it. Their reports follow.

The comparison by the committee of 75 standard movable cabinets made by 17 manufacturing companies showed a general similarity in length, in that the units varied in multiples of 4 or 6 inches. As this measure, 4 inches, has been found to be a module unit easy to adjust to house-construction dimensions, standardization of work areas would be simplified if some such module unit could be studied in cooperation with architects, contractors and manufacturers. Such a study should bring about a reduction in types of built-in units and possibly the planning of model types, few in number, which could be assembled to meet the needs of any type of dwelling—low cost or high cost—with as much variation in material and finish as there is now in automobile manufacture. Floor and wall finishes could be made a part of the unit plan; this, however, deserves more careful study.

Deane G. Carter of the committee has made some interesting experiments in constructing low-cost, built-in cabinets and worktables using inexpensive woods and wood products. (Mr. Carter's project is described in the following section, "Suggested Designs for Storage Equipment Inexpensive to Build.")

### **Suggested Designs for Storage Equipment Inexpensive to Build**

Although a large number of families can afford ready-made equipment, there is a distinct need for the development of plans for

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<sup>5</sup> Kneeland, H. "Abolishing the inefficient kitchen." *Jour. Home Econ.*, 21:475-581, July, 1929.

kitchen storage equipment that can be constructed on the job, from easily worked materials at low cost. Such material can be distributed to homes in the lower-cost ranges.

To meet this need it is essential to eliminate largely from consideration the variations due to tradition, personal desires, individual sizes, and special work, and, to seek to establish standard designs using materials, sizes, shapes and methods that have a wide application.<sup>6</sup>

The study shows that a majority of houses are underequipped with storage space, and that suitable storage equipment is lacking in the kitchen in a large number of instances. If it were possible to develop satisfactory type designs that could be afforded in these homes, the situation doubtless would be improved irrespective of whether or not the items of equipment were designed for each case. As a matter of fact, it is probable that well-drawn designs, based upon typical requirements, would produce more satisfactory equipment than individual designs based upon limited experience.

**Limitations of the problem.** This study was limited to the mechanical design of storage equipment for the single-family house costing from \$2,500 to \$3,500. The sizes proposed are generally accepted as standard, or closely approximate common practice. This project was confined to a single set of sizes and one group of materials, illustrative of design methods that might be applied.

**Objectives.** In developing the designs the following limitations were considered:

1. Stock or standard materials to be used.
2. Simplicity of design.
3. Minimum of different kinds and sizes of materials.
4. Minimum number of variations in unit sizes.
5. Construction accomplished with a few common tools.
6. A construction method not difficult to explain or follow.
7. Designs applicable to quantity production.

**Items of equipment designed.** Analyses of homes completely equipped, studies of commercial units, and stock plans indicate the typical requirements for kitchen storage. In general, the kitchen

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<sup>6</sup> The report which follows presents the results of a study made jointly by the Conference Committee on Kitchens, and the Agricultural Experiment Station, College of Agriculture, University of Arkansas.



storage equipment may be classified as consisting of the following items:

1. Base sections (counter and storage under).
2. Wall sections (cupboards, or wall shelves).
3. High storage (to utilize upper wall space for miscellaneous or seldom-used materials).
4. Utility cabinet (broom closet, storage case).
5. Low movable table (for supplementary work surface, and for working surface—person seated).
6. "In wall" cabinets and supplementary work surface.

It is evident that the foregoing list includes most of the commonly required "built-in" equipment. Constructed in an infinite number of widths, this equipment might be incorporated into any kitchen, irrespective of size.

To reduce the variations in items, it is necessary to establish standard sizes identical with, or approximating, sizes occurring in general practice. An effort was made to establish a range of sizes which offered the minimum number of standard variations yet covered the normal requirements.

**Development of standard sizes.** Certain features of medium and low-cost houses already are fixed by custom, or may be established without adverse effect on the facilities provided. These features may be classified as structural, mechanical equipment, and storage or built-in equipment. For the purpose of the present study it was assumed that certain standards might be applied.

Structural features (common dimensions):

Ceiling height.....	8 feet
Door and window heights.....	6 feet 8 inches
Door width.....	2 feet 8 inches
Window widths (adaptable to any space available by the use of stock sizes and variations in casings)	
Free working area.....	30 inches to 32 inches

**Mechanical equipment:** While it is theoretically possible to design sink, stove and refrigerator equipment to fit an exact standard of size, this procedure is beyond the scope of the study. The simplest procedure is to accept the typical, or the maximum space requirements which are: Sink, 22 inches by 30 inches or 42 inches; stove, 28 inches by 42 inches; refrigerator, 24 inches by 38½ inches; and 60 inches maximum height.

**Storage equipment:** It is possible to approximate the height and depth measurements of working surfaces, wall cabinets, broom closets, storage cases, and the like, to conform closely to accepted practice. For example,

the working-surface height varies normally from 32 to 34 inches. Thirty-three inches may be taken as average, with provision for base adjustment to meet individual needs. If the 80-inch openings height, and 96-inch ceiling height are accepted as standard, all height measurements may be established.

Widths, or linear measures, are not standardized at present. In the present project, an arbitrary width measure of 20 inches is taken as a "single" section. On this width basis single, double or triple sections are in a size that conforms to general practice. In fact, with these measurements, standard units could be fitted into any kitchen with a change of 10 inches or less in dimension of the room.

However, uniform cabinet door widths of 17 inches are used in multiple sections, so the total width is reduced slightly by the single 1½ inch trim or facing between the adjacent doors. Therefore the standard linear measures become 20 inches, double section 38½ inches, and triple section 57 inches, respectively.

Table of standard measurements: Summarized, the proposed standard measurements may be tabulated as follows:

Ceiling height.....	8' 0"
Door and window height.....	6' 8"
Door width.....	2' 8"
Stove area, maximum.....	28" x 42"
Refrigerator area, maximum.....	24" x 38½"
Sink width, normal.....	22"
Sink lengths, most common.....	30" and 42"
Clear working space, minimum.....	30"
Work surface height, normal.....	33"
Clear space above base section.....	15"
Work surface, for persons seated.....	25"
Base section, height.....	33"
depth.....	22"
width.....	20", 38½", 57"
Wall section, height, total.....	48"
depth.....	12¼"
width.....	20", 38½", 57"
High storage section, height.....	32"
depth.....	12¼"
width.....	20", 38½", 57"
Broom closet, height.....	64"
depth.....	16"
width.....	20" (or 38½")
Movable table, height.....	25"
width.....	20"
length.....	36"
Spice cabinet, height.....	17" (may be variable)
width door.....	14½"
Drop shelf, height.....	33" (may reduce to 25")
width.....	14½"

**Adaptation to a modular unit.** A majority of the measurements proposed as standard approximate multiples of 4 or 8 inches.

This is true of the height measurements. By some slight adjustments, most of the proposed standard measurements could be developed on a modular unit of 8 inches. Since this module is exactly one-half of the usual spacing of the house framing members, some structural advantage might result.

**Structural materials.** The adoption of standard measurements would make possible quantity manufacture, or rapid home construction of cabinet work from standard parts, thus reducing the cost of equipment. To illustrate the standard items, and to study construction, the project was continued with the building of full-size models.

It is evident that maximum results can be obtained only by the use of materials of relatively low cost, easily obtainable throughout the country, readily worked, and having characteristics of durability, strength, stiffness, moisture resistance, and the like, necessary for good quality construction. The study indicates that panel construction could be made suitable for most of the designs.

The materials selected for study consisted of a thick, synthetic, rigid fiber board for all panel parts, and white pine for the wood framing. A pine molding,  $\frac{3}{4}$  by  $1\frac{1}{2}$  inches milled in three shapes, proved sufficient. The entire cabinet equipment was constructed from this single size of pine, and the flat sheets. Much the same result would be secured by the use of any light framing material, and thin, strong panels. Steel, plywood, and synthetic structural materials could be used in manufactured units. The illustration, *Figure 1*, shows the stock list used.

**Standard equipment construction.** The major objective of the project was a construction plan not difficult to accomplish. Doors, drawers, work tops, shelves, sides, backs, and fronts were made uniform in all of the units. For each piece of equipment, a material and cutting list, with exact measurements, was made. The fewest possible pieces, cuts, and sizes were included.

**Doors.** Four heights of doors were used in all of the storage items, and all in a single width of 17 inches. Doors were made from the grooved moldings, with mitered corners, held together by corrugated fasteners. The panels were of the fiber board (*Figure 2*).

**Drawers.** A new design for the drawers was developed, con-



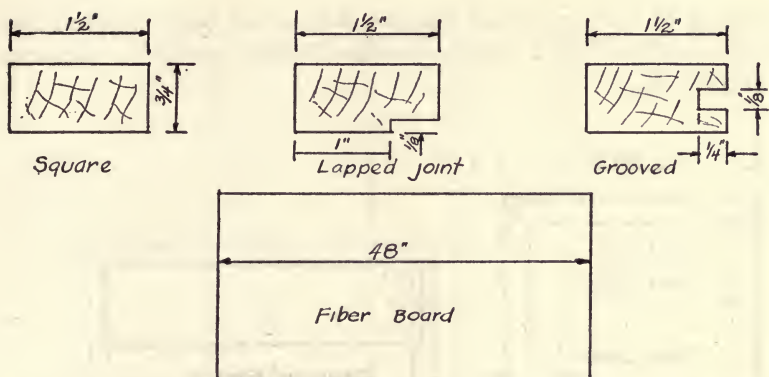


FIG. 1. Stock for cabinet construction. All of the units were constructed of white pine  $\frac{3}{4}" \times 1\frac{1}{2}"$ , in three shapes, and fiber board in  $\frac{1}{8}"$  and  $\frac{3}{8}"$  thicknesses.

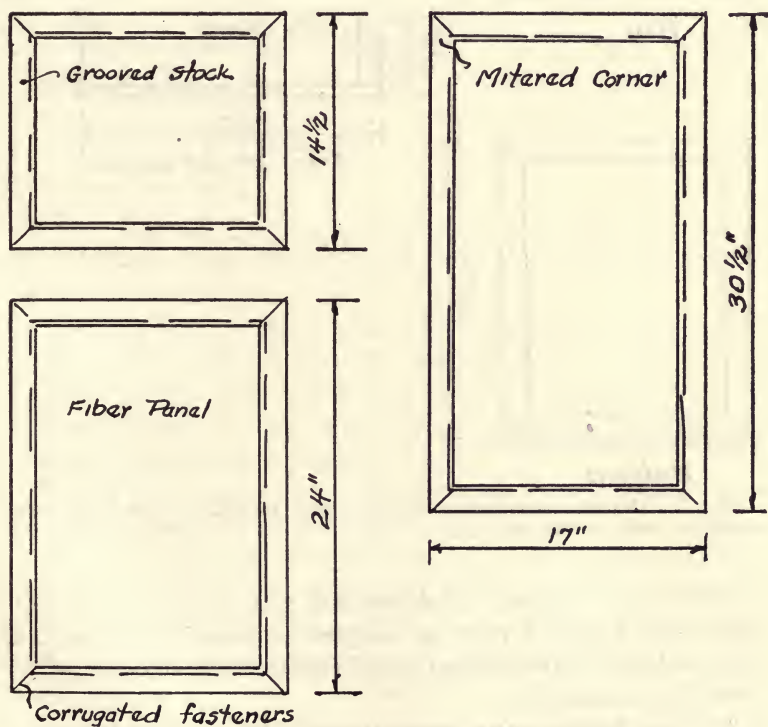


FIG. 2. All doors are  $17"$  wide, and, except broom cabinet door, the 3 sizes shown are all the doors used for the complete equipment.

sisting of a front, made like the doors, and bottom, sides, and back made of fiber board, reinforced with pieces of molding (Figure 3).

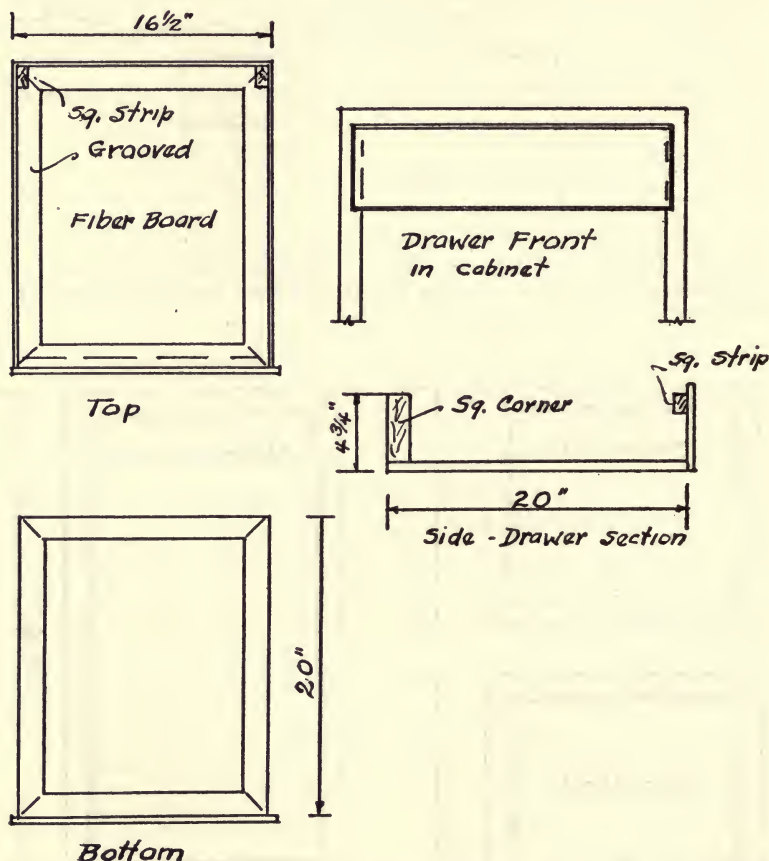


FIG. 3. Drawer construction utilizing pine mouldings and fiber panels could be made in various sizes.

*Work tops.* Although work surfaces may be made from ordinary wood, metal, plywood, or composition material, the construction used was  $2/16$ -inch fiber board (quarter-inch thickness would be still more suitable).

*Shelves.* Shelves were made from  $3/16$ -inch fiber board, reinforced at the ends and back with the pine moldings.

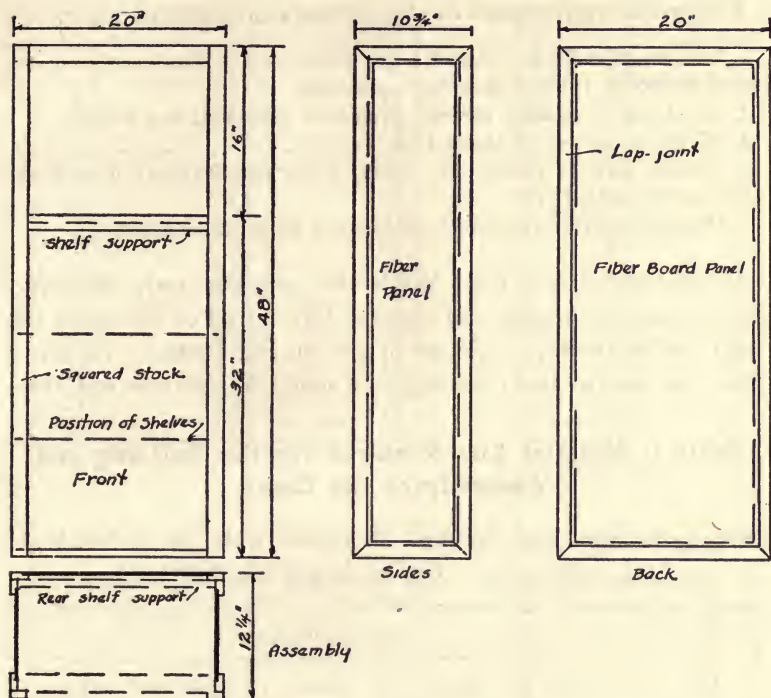


FIG. 4. Construction details showing all measurements, parts and assembly to make a complete wall case 48" high, and one 20" unit wide.

*Backs.* The entire cabinet backs may be omitted in built-in construction, when erected against a smooth wall. In the present study all models were made with backs. The construction resembled "picture framing" procedure—lap-joint moldings, mitered corners, and fiber-board panels.

*Sides.* Cabinet sides for all wall cases were made identical with the backs, using lap-joint stock and fiber board. In order to eliminate the panel effect on base sections, the framing members were attached to the front and back sections  $\frac{1}{8}$  inch in, and the fiber board set to give a smooth surface. Stated otherwise, the sides of base sections consisted of square stock with the fiber board over.

*Fronts.* Fronts were made uniformly of square moldings cut to form correct openings for doors and drawers.



The primary advantages of this method of construction are:

1. The use of uniform materials; two thicknesses of fiber board and one size of  $\frac{3}{4}$ -inch x  $1\frac{1}{2}$ -inch moldings were used.
2. Exact size of molding permits of uniform measuring and cutting.
3. All parts may be cut at one time.
4. Various sections (back, sides, front, doors, and drawers) made separately and assembled.
5. With careful construction all planing and fitting are eliminated.

*Details and cutting list.* While the complete study developed detail construction plans and material lists for all of the items, the details of one unit is sufficient to present the method. *Figure 4* shows the construction drawings of a single 20-inch unit wall case.

**Table 1. Material List Required for the Building and Assembly of the Case \***

(Standard single wall section—20 inches wide, 48 inches high,  $12\frac{1}{2}$  inches deep. Ceiling height about 8 feet)

Use	Materials Required								
	Square		Grooved		Lapped		Fiber board		Miscellaneous
	Pieces	Inches	Pieces	Inches	Pieces	Inches	Pieces	Inches	
Front	2 2	17 48							
Sides and shelf braces	6	$18\frac{1}{2}$			4 4	$10\frac{3}{4}$ 48	2	$\frac{1}{8}$ x $8\frac{1}{2}$ x46	
Back					2 2	20 48	1	$\frac{1}{8}$ x12x46	
Shelves							4	$\frac{3}{16}$ x11x18 $\frac{1}{2}$	4 shelf stops
Doors (2)			2 4 2	$14\frac{1}{2}$ 17 30 $\frac{1}{2}$			1 1	$\frac{1}{8}$ x12x14 $\frac{1}{2}$ $\frac{1}{8}$ x14 $\frac{1}{2}$ x28	4 hinges 2 catches

\* Material consists of 1/8-inch and 3/16-inch fiber board, and 3/4-inch by 1/2-inch white pine, in square, grooved, and lapped-joint moldings, 4-d. finish nails, 3/4-inch wire nails, and corrugated fasteners on all work. Case fits against ceiling. No top provided. Back fiber-board panel may be omitted if wall plaster is satisfactory for back.

*Illustration drawings.* *Figures 5* and *6* are the typical elevation views or scale drawings of some of the items of cabinet work developed on the project.

**Application to kitchens.** The value of any equipment de-

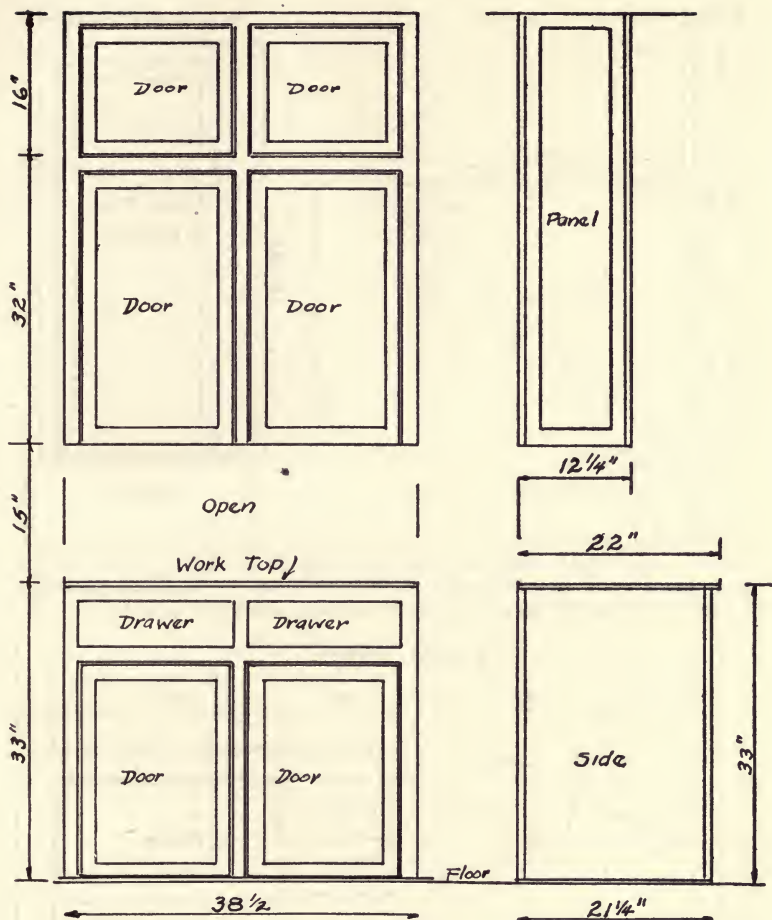


FIG. 5. Elevation views showing double base and wall cabinets, typical of the principal built in kitchen case, but constructed according to the standard measurements.

veloped is measured by the adaptability to typical situations. From a study of existing plans it was determined that no kitchen plan dimension would need to be altered more than 10 inches to fit exactly to the proposed standard equipment. Usually only 5 to 6 inches of change was required, and in some instances, slight changes in the position of doors and windows enabled the equipment to be fitted exactly.

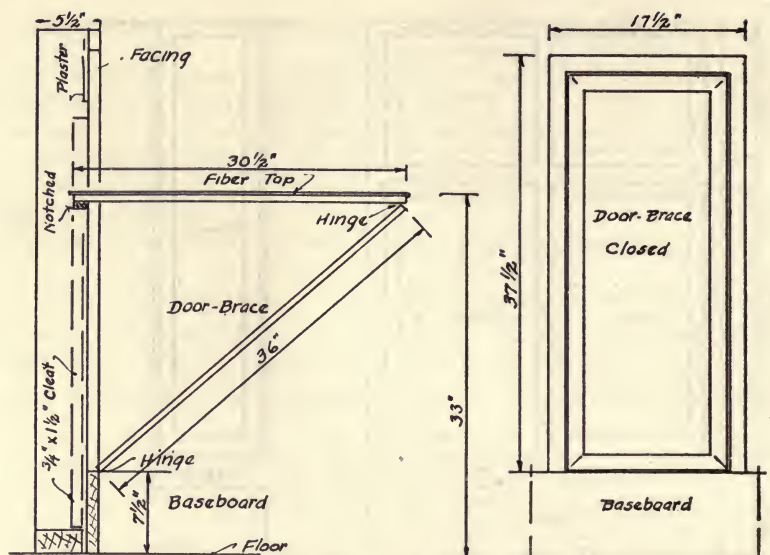


FIG. 6. Drop shelf fitted into the wall; may be let down to give temporary or extra work surface space. Made also from the standard mouldings and panels. The shelf drops in behind the door when not in use.

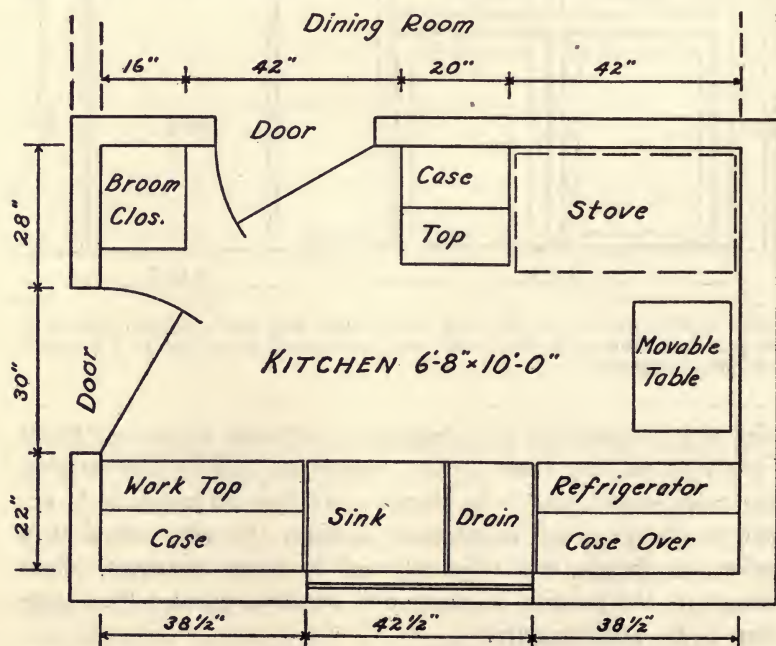


FIG. 7. Kitchen plan illustrating the use of standard units. Storage units include single base, single wall case, broom closet, high case over broom closet, double base section, double wall section, supply case over refrigerator and low movable table. Adapted from plan by Deane G. Carter.







Adequate cupboard space and work surfaces make kitchen work easier.



An inexpensive arrangement for cleaning supplies.

The plan (*Figure 7*) has been prepared to indicate the use of the standard equipment in one type of kitchen.

Whether the units are purchased ready-built or built-in, whether they are portable or stationary, is a matter of individual preference. Cabinets, cupboards, etc., may be as cheap to buy as to build, and the factory product may be better made. If built from standard designs they can be selected to fit the particular space and meet the homemaker's particular requirements. Built-in pieces have the advantage of being joined directly to the floor and walls, which reduces the amount of floor and wall space to be cleaned or re-finished. The appearance of built-in pieces usually is simpler and neater.

The dish cabinet is located at the left of the sink in order that the dishes may be taken from the dish drainer, at the left of the sink, and placed immediately in their permanent storage place. From here bowls for serving foods directly from the stove or sink are easily accessible and may be passed through the cabinet.

### Cabinets and Cleaning Closets

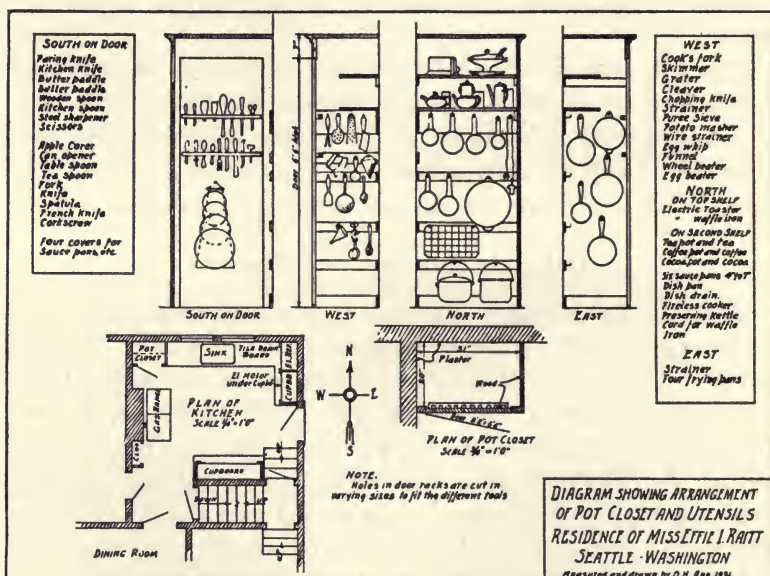
**Shelves—open or in cabinets.** It is a debatable question as to whether shelves should be open or closed, but there is a unanimity of agreement that shelves should not be too wide. From 12 inches wide in dish cabinets to 9, 7, 5, and 3 inches in shelving over the sink and worktable are advisable. Under no circumstances should shelves be so wide that there is a temptation to stack articles one back of the other. Spacing between shelves should be adjusted to the height of the article to be stored on the shelf. In many cabinets shelves are adjustable, thus meeting this situation. One writer recommends for the lower compartment of cabinets, shelves that are half as wide as the closet is deep. This allows the inside of the door to be utilized for hanging pans, pots and other utensils not so often used. Frequently used apparatus should be stored on shelves over the work center or hung on hooks near the sink and stove.

**Drawers and cabinet doors.** The more nearly the main utility drawer can be avoided the better. Each drawer should be adjusted to fit the utensils; otherwise there is danger of piling many deep in the drawer. Various articles require different depths



of drawers. Those for small equipment should be shallow, otherwise the top area is wasted. Partitions for the separation of the equipment make it more accessible. Removable partitions facilitate cleaning. Drawers constructed with guides operate more easily. When closed, drawers should be flush with the facing. If they push in beyond the facing, stops should be put at the rear.

Doors should be so arranged as not to interfere with any part of the cabinet construction itself or with other pieces of equipment; or if they are built over the worktable, they should be so



placed that they do not interfere with the worker. Sliding doors, if poorly constructed, may stick; therefore, two narrow doors are more desirable than one wide one. The inside of wooden doors may be utilized by adding hooks, rods, and very narrow racks for various articles and cleats for knives, forks and spoons. These may be so spaced as not to interfere with the shelves when the door is closed, or the main shelves may be cut narrower to allow additional space.

**Toe room.** Allow toe room for the worker to stand com-

fortably, if the storage space is built under a working surface and to the floor. Allow knee room under equipment for worker to sit comfortably. The space under the sink should be left open for knee space when sitting, for accessibility in making repairs to plumbing, and for drying out moisture which condenses on the under part of the sink. This will not interfere with the use of space under the drainboards for storage.

**Cleaning closets.** Storage closets for kitchen cleaning appliances, cloths, polishes, etc., should be easily accessible to the kitchen, but preferably not in the kitchen. Include shelves for cleaning preparations and supplies. Long-handled brooms and mops may be hung from supports underneath a shelf. If there is no space for such a closet, a compact arrangement as suggested by Mrs. Marie Meloney<sup>7</sup> may be placed on a door or on a wall space in a wall kitchen. If possible, the cleaning closet should be provided with means for ventilation.

## HEIGHTS OF WORKING SURFACES

Probably no one question has been more discussed than heights of work surfaces. A summary prepared of the recommendation offered most frequently suggests the following tests:

"From 32 inches to 35 inches from floor. Thirty-four inches is a safe height for most workers."<sup>8</sup>

"When worker can place palm of her hand on table, when standing erect, without stooping, height is correct."<sup>9</sup> (Approximately the same statement is made by G. M. Bane and H. P. Twitchell,<sup>10</sup> and Grace Morin.<sup>11</sup>)

Mary Mason reports the following results in an unpublished study on working heights where the experimenters were students at Iowa State College:

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<sup>7</sup> For information on this feature, see *The Herald Tribune practical kitchen*. Bulletin.

<sup>8</sup> Young, H. B. *Planning the home kitchen*. Cornell Reading Course, Lesson 108, June, 1926, p. 9.

<sup>9</sup> Lynn, G. *The step-saving kitchen*. Iowa State College, Home Economics Bul. no. 17, June, 1928, p. 10.

<sup>10</sup> Bane, G. M., and Twitchell, H. P. *Just kitchens*. Ohio Univ. Bul. 2, 1924-25, p. 10.

<sup>11</sup> Morin, G. *The successful kitchen*. N. Y. State College of Home Economics, n.d., p. 3 (mimeographed).

## Working heights \*

Number of studies in each class	Height distribution (Unit = 1 inch)	Most comfortable table height standing (Inches)	Elbow to table of most comfortable height (Inches)	Stool for table of most comfortable height (Inches)
11	61-62	31 $\frac{7}{11}$	5 $\frac{11}{13}$	25 $\frac{2}{11}$
21	62-63	32 $\frac{1}{3}$	6 $\frac{1}{3}$	25 $\frac{3}{10}$
49	63-64	31 $\frac{4}{5}$	7 $\frac{3}{7}$	25 $\frac{7}{9}$
77	64-65	32 $\frac{1}{2}$	7 $\frac{1}{3}$	25 $\frac{1}{2}$
54	65-66	33	7 $\frac{1}{2}$	26 $\frac{1}{2}$
58	66-67	33 $\frac{4}{5}$	8 $\frac{11}{13}$	26 $\frac{2}{3}$
32	67-68	33 $\frac{1}{2}$	8 $\frac{1}{3}$	26 $\frac{1}{2}$
12	68-69	45 $\frac{2}{5}$	7 $\frac{1}{2}$	27 $\frac{11}{13}$

\* Simple averages were used in above studies.

Dr. Lillian Gilbreth makes the following statement:

"Worker standing. The worker should stand erect with arms comfortably relaxed from the shoulder and with elbows bent. She will find the most comfortable working level one high enough to be used without stooping, but not high enough to cause her to raise the hands above the level of the elbows."<sup>12</sup>

The New York Herald Tribune Institute offers to measure any individual and suggest the best heights for use.

"Most kitchen fatigue is a result of having the surface too low or too high for the worker. On the chart shown above, any visitor to the Institute may, without charge, be measured by one of our staff experts and told exactly how high her kitchen tables and other working surfaces should be to allow a person of her height to work comfortably."<sup>13</sup>

The Brooklyn Gas Company, in a small pamphlet entitled, "The Kitchen Practical," suggests individual measures needed and methods of plotting heights of work surfaces and kitchen arrangement. Various methods have been suggested for determining such heights, some on the basis of height of the worker and some by using a measure combining height and length of arm.<sup>14</sup>

In an attempt to get a more definite answer to this question, special studies were planned by Alba Bales. Miss Bales used indirect calorimetry to find the influence of work surfaces at different heights on energy cost for different tasks. The purpose of this

<sup>12</sup> Gilbreth, L. M. *The kitchen practical*. New York, Brooklyn Borough Gas Co., 1930.

<sup>13</sup> New York Herald Tribune Institute. *The Herald Tribune practical kitchen*. Bulletin, 1930.

<sup>14</sup> Gilbreth, *op. cit.*



study was to obtain results which would serve as a guide in providing efficient heights of surfaces.

The data show that there is a satisfactory working height at which any individual works most effectively. Less energy is used on any task sitting comfortably on a chair than is spent in standing or sitting on a stool. Less is spent in standing relaxed or partially supported, than when standing straight or at attention. In interpretation of these studies too much emphasis should not be laid upon the actual amount of energy expended. Such figures are only comparable when the same groups of muscles are used. While movements of the large muscles make greater energy demands upon the worker, the more difficult adjustments of smaller muscles are more important factors in causes of fatigue.

No satisfactory measure of fatigue is available. Extensive studies have been made in connection with industry. While there are important physical factors which enter into fatigue, psychological factors are equally important; and up to the present no satisfactory measure of these in relation to their influence on fatigue has been found.

### FREE WALKING SPACE

The standard for free working space has been given as allowing at least 30 inches in the center of the room between working areas on either side. Sequence in work areas should follow from right to left or from left to right ending with the completed food ready for serving at the dining-room door or the dining-room table in the alcove area. In clearing away, the routing of work, if we are right-handed, is from right to left. The refrigerator, if possible, should be placed so as to be near the beginning of the work-preparation routing of the kitchen; the sequence being refrigerator, storage space, work counter, sink, range, and serving table.

### WALLS AND WALL FINISHES

With the present utilization of wall space for cupboards, refrigerator, worktable, sink and range, the possible finishes for kitchen walls become of minor importance. The essential is that the wall surface and the material built against the walls should be as nearly impervious to moisture as possible. Hard plaster painted is satisfactory, or it may be covered with washable paper or paper that may be varnished or painted. Oilcloth glued to the wall is satis-

factory. There are many types of wallboard on the market, some of them excellent for panelling purposes. Enamelled iron walls are now provided but are expensive. The modern method of utilizing equipment to form the entire inner wall of the kitchen has the advantage of easy adjustment to sizes of workrooms; or the entire kitchen may be fabricated and set up in the building.

## FLOORS AND FLOOR FINISHES AND COVERINGS

Studies made for the committee under the direction of Margaret Justin included the tests on printed linoleum coverings and felt-base floor covers as these were more nearly within the limitation of cost for the \$3,000 house. The tests indicated that linoleums were heavier than felt bases, that they had greater tensile strength but absorbed a higher percentage of water when soaked, and that with both of them the use of strong lye water dulled the surface and in some cases disintegrated the body of the linoleum. Oil seemed to have no effect upon either fabric. The advantage of the lower price was offset by the lower wearing quality in both groups.

Mastic floors may be used in the kitchen. Rubber tile is good though expensive. Composition tile is coming into the market and has the resiliency of wood. It would be an advantage if the floor could be laid in one piece, and this may be a possibility when the fabricated kitchen becomes common. The consensus of opinion is that the cornice piece and base molds should be rounded to form an easy curve between ceiling and wall. In case of base molds there should be a better joining of floor and wall. Present baseboards as they exist in the average small house are not satisfactory.

## VENTILATION <sup>15</sup>

Studies made a few years ago prove that the problem of change of air is not so important in maintaining physical well-being as the problem of movement of air. High humidity, accompanied by high temperature is particularly harmful. The fatigue from work is increased in kitchens and laundries, under conditions of high temperature and humidity, probably as the result of heat retention in the body due to lack of normal evaporation caused by saturated still air surrounding the worker.

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<sup>15</sup> See *House design, construction and equipment*. Publications of the President's Conference on Home Building and Home Ownership, vol. V.

Ventilation of the kitchen is of as much importance in the removal of odors and preventing their spread to the rest of the house as in keeping down temperature and humidity. It is recommended that gas stoves be vented by a flue to the chimney or the outer air. In a small detached kitchen with cross ventilation, removal of odors and humidity usually can be taken care of by windows especially designed and placed for this purpose, or a small fan may be placed in one window for forced ventilation. For the larger kitchen in the more expensive house, various ventilating devices are on the market.

Where one window is used, there should be two openings with a neutral zone between, the upper opening being as close to the ceiling as possible. A hanging or standing wing permanently placed in position at the upper part of the window will allow the window to be opened or closed without disturbing the device. This wing tipped downward into the room gives the best service.

In discussing the use of the hood over the cooking area, one writer advises strongly the use of the closed hood with the air shaft placed next to the chimney, and if possible with a mechanical fan attachment. The cross sectional area of the hood should be 0.1 to 0.3 per cent of the kitchen surface to prevent loss by friction. During the cooking the closed hood prevents the vapors from penetrating the kitchen or other rooms of the dwellings.

Where there is a vent shaft or flue near the ceiling unconnected with the stove a bracket shelf placed facing the opening of the vent may be used to hold an electric fan. If this fan is facing the vent, even a small size is sufficient to ventilate the small kitchen without creating undue currents of air.

The larger exhaust fan may be installed in the kitchen work areas so that all of the odors of cooking will be carried outside and the circulation of air will be such that the worker is always comfortable. When the fan is not in use the window may be closed. While the initial cost of installation may seem high, the increase in the electric bill is small, as the period of time of daily utilization may be short. The time is coming when the exhaust fan and the air-conditioning mechanism will give the same even temperature throughout the entire house, but until that may be achieved within reasonable expenditure, windows for cross ventilation in the kitchen or the window-and-fan method of ventilation are essential for efficiency in work.



## LIGHTING <sup>16</sup>

It is estimated that 3 per cent of the cost of building is all that is necessary for a good minimum standard lighting job on a \$3,500 house.

With a total of \$3,000 to spend for the construction of a house, the chief recommendation resulting from a consideration of this problem, is that the wiring for electric service or piping for gas must be planned and estimated with the greatest care, if it is to prove adequate under the test of continued use of appliances; even though in many cases, where incomes are limited, few large pieces of equipment may be used immediately. Additional outlets reduce the cost per outlet.

The costs involved in changing wiring for lighting or adding outlets after a house is completed counsels greatest caution. This is especially important in kitchens.

The lighting of the rural kitchen is solved in various ways as shown by studies of rural homes. In some sections practically all use electric lights, the source being from public utilities or from privately owned plants; but in other sections the lighting problem is still 90 per cent kerosene, gasoline or bottled gas.

The lighting fixtures in the kitchen should be so placed that the shadow cast by the worker is not thrown on her working area. In some cases one light, placed sufficiently high, will suffice. In a larger kitchen there should be a light near the worktable, one above the sink, and one at the end of the range. If electric current is available, a sufficient number of electric outlets, conveniently located for electric devices, should be installed when the house is built, for the house should be wired for their use as it is less expensive to wire when building than later on. All circuits should terminate in a load center panel board which should be located on the inside of an exterior wall of the kitchen.

## RECOMMENDATIONS

The committee recommends the following for future studies:

1. A study of kind and amount of household production by low and middle-income families of various type households living on farms, in rural villages and urban centers, in order to determine work-area requirements and kind and amount of equipment and its arrangement.

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<sup>16</sup> See *House design, construction and equipment*. Publications of the President's Conference on Home Building and Home Ownership, vol. V.

2. Study of storage-area requirements for efficient household production in low and middle-income families, of various type households living in urban centers and on farms.

3. Study of the factors affecting the use of commercial utilities by low and middle-income groups which would include the comparative cost of operations carried on at home with costs of those outside.

4. Study of the changing needs of families through the various stages of the homemaking career to show the possibility of making work areas alterable to these changes.

5. Experimentation on wall finishes and coverings in order to perfect a finish or covering which is smooth, washable, durable, and inexpensive. Experimentation on floor finishes and coverings in order to perfect a finish or covering easily cleaned, durable, resilient, of standard colors, and inexpensive.

6. Experimentation on sinks in order to provide a sink of standard size, sanitary, easy to clean and inexpensive, that will meet the needs of the worker. Requirements for such sinks would be determined through recommended research study 8.

7. The committee recommends further study of the influence of heights of work surfaces on energy utilized and on fatigue. It suggests the possibility of a cooperative study with psychologists and home economists to this end.

8. The committee recommends the formation of a cooperative committee to study kitchen equipment. This committee should be under the leadership of a home economics group and should draw its membership from those Government bureaus which are in a position to contribute to the technical information available. Such bureaus might include the Bureau of Home Economics, the Bureau of Agricultural Engineering, the Bureau of Standards, the Bureau of Mines, a representative of the research committee of the home economics section in the Land Grant College Association, a home economics member of the Experiment Station staff, and representatives from the industries concerned. The first work of such a committee should include the study of present-day designs to determine whether or not they are satisfactory for the purposes of the modern kitchen. After satisfactory designs have been agreed upon, standard specifications should be set up, under the guidance of the American Standards Association, in order to work out methods for testing such standards and some device by which household equipment can be labeled in accordance with such specifications. The work on refrigerators is an example of such a program. Such equipment as types of stoves, sinks, worktables, and cabinets particularly need study. All should be produced in standard sizes and designs to make possible quantity production and to make it possible also to fit such equipment into standard kitchen designs. It is believed that some modification of the type of kitchen study suggested in this report would result in such size standardization.

## CHAPTER X

# THE LAUNDRY AND ITS PROBLEMS

## INTRODUCTION

In studying the problem of home building, one of the rooms of particular interest to the housewife is the laundry. Times and customs have changed since the period when wash day was a semi-annual event or when the family and the wash basket went on an all-day picnic to some river bank. Today, with the convenience of running water and the individualism of the family group, a special room or space for the cleaning of clothing has been set aside in many of our homes. In considering cost reduction in the construction of the home, it is evident that in many family groups, particularly of adults, it is an extravagance to maintain one room for a process that is carried on only once a week. On the other hand, in a family group including children, the laundry room is a much used area and needs to be part of the house. Each side of this problem must be discussed particularly with regard to various types of homes and various income levels.

## THE ELIMINATION OF THE LAUNDRY FROM THE HOME

As the spinning wheel left the kitchen fireside and the sewing machine took its place, and as ready-made clothing later displaced the sewing machine, so little by little other processes once carried on in the home are now relegated to commercial establishments. The power laundry, once catering to men's clothing, is now handling the family laundry bundle, at least in the washing process, the remainder of the task being completed at home. An eastern survey of this situation is here summarized:<sup>1</sup>

1. A member of the family does the laundering at home in the majority of families in all communities.

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<sup>1</sup> "Bureau of Home Economics survey of homes." *The Forecast*, Mar., 1929, p. 187.

Clark, E. L. "Who does the laundry." *Starchroom Laundry Jour.*, Oct. 15, 1928.



2. The larger the community, the smaller is the proportion of homes where the laundry is done by a member of the family.

3. In cities over 100,000, a larger proportion send their flat work to the power laundry.

4. Excluding the farm home, there seems to be a very definite relation between the size of the family income and the type of laundry service used. As the income increases, the family relinquishes the laundry to a paid worker or to the power laundry, except for silk stockings. In the very highest income groups, there is a paid worker in the home.

## THE POWER LAUNDRY

### The Use of the Power Laundry

Actual figures on the use of the power laundry are few in number. A Rhode Island report says that approximately 40 per cent of the homes investigated sent out at least part of their washing to a laundress or a commercial laundry.<sup>2</sup> A survey of a group of approximately 900 club women in Massachusetts indicated that 68 per cent sent part or all of their laundry out of the home and 64 per cent sent part or all to the commercial laundry.<sup>3</sup> A 1920 survey of over 10,000 farm homes stated that less than 4 per cent sent their washing out.<sup>4</sup> The 1926 survey of the American Home Economics Association reported that 19 per cent of the farm homes and 38 per cent of the town homes sent the washing and ironing either to the power laundry or to a laundress.<sup>5</sup> In a fairly recent report from Texas on 505 electrified farms the statement was made that 18 per cent sent washing to a city laundry.<sup>6</sup> In the Oregon time study the percentage is much lower: "In only 5 per cent of the farm households and 15 per cent of those not on farms was there any laundry sent out at all (excepting men's collars) during the week reported."<sup>7</sup> A Washington State bulletin reported that of

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<sup>2</sup> Whittemore, M., and Neil, B. *Time factors in the business of homemaking in rural Rhode Island*. R. I. Agri. Expt. Sta. Bul. 221, 1929.

<sup>3</sup> Newton Federation of Women's Clubs. *A laundry survey*. Boston, Laundryowners Bureau of Boston, 1928.

<sup>4</sup> "The farm woman's problem." *Jour. Home Econ.*, 12:437, 1920.

<sup>5</sup> Hastie, M., and Gorten, G. "What shall we teach regarding clothing and laundry problems." *Jour. Home Econ.*, 18:127, 1926.

<sup>6</sup> Waggoner, J. E. *Electricity on Texas farms*. Tex. Eng. Expt. Sta. Bul. 35, 1928.

<sup>7</sup> Wilson, M. *Use of time by Oregon farm homemakers*. Ore. Agri. Expt. Sta. Bul. 256, No., 1929.

approximately 600 homes, 79 per cent never used outside services.<sup>8</sup>

Looking at the problem from the power laundry standpoint, we find plans for extensive advertising campaigns. City residents, particularly men, have been using power laundry services for a number of years. Power laundries in the small towns seem to be prospering. Laundries in rural centers are making definite attempts to meet the needs of farm homes, sending their trucks far into the country.

These data on the extent of use of the power laundry indicate that it is a growing industry. There will be an influence on laundering habits in those regions where labor is available and inexpensive. The fashions of a period will also affect laundering habits; for instance, the modern tendency to use more silk and fewer cotton undergarments. Possibly, the factor which affects this process most of all is the income level of a family and its standard of living.

### Cost of Power Laundry Services

The few published articles on this subject start with a definite family, say of five members, two adults and three children. The weekly bundle weighs about thirty pounds. Completely finished work, under special rates, would cost between \$4.50 and \$6. Using damp wash service, with which most of the drying and all of the finishing must be done at home, the laundry charges are approximately \$1.30, at a 4.4-cent rate. Rough dry service with all the flat work ironed costs slightly less than \$2.90, at a 9.2-cent rate per pound. The rates used were obtained by averaging rates from fifty-four laundries in the State of Washington.<sup>9</sup> Damp wash rates throughout the states vary between 3 and 7.5 cents per pound as reported by Dewey.<sup>10</sup> Rough-dry (starched) rates vary between 6 and 15 cents, averaging 9.6 cents per pound.

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<sup>8</sup> Roberts, E. H. *The efficiency of the home laundry plant*. Wash. Agri. Expt. Sta. Bul. 248, Feb., 1931.

10.3 per cent sent things to the laundry every week.

8.3 per cent sent things to the laundry occasionally.

2.4 per cent sent men's shirts and collars only.

79.0 per cent never employed laundry services.

<sup>9</sup> *Ibid.*

<sup>10</sup> Dewey, D. E. *Damp wash service through the microscope*. Laundry-owners Nat'l Assn. Bul., Aug., 1931, p. 16.

## COST OF HOME LAUNDERING WITH EQUIPMENT

The cost of doing the laundry at home with equipment is reported in the Washington bulletin.<sup>11</sup> Such costs include investment in washing machine, tubs, ironing board, etc.; such weekly supplies as soap, bluing, starch, water and electricity, gas, wood and coal, totaling approximately \$1 up per week. Home costs for true comparison with power laundry services should also include labor costs, which might vary from \$2 to \$4, depending upon the location and prevailing labor rates. Home costs as presented in the bulletin mentioned disregard the initial cost of the laundry room and its built-in equipment. These would possibly increase the weekly cost between \$.25 and \$.50, if the original building costs were distributed over a period of twenty years. The total cost of home operation would range between \$3.25 and \$5.50.

## EQUIPMENT FOR MINOR WASHING

On the premise, then, that the laundry be sent to a commercial establishment, only a small investment of less than \$10 need be made to handle minor washing. The one-family dwelling with a basement, possibly equipped with a sink and running water, could be further equipped with a bench, small tub, hand wringer, drying rack, iron and ironing board. This same type of equipment would suffice for a two-family dwelling or for the multiple dwelling. The bathroom bowl or a small enamel tub is often used for laundering small articles. Drying is carried on indoors on a rack or line.

Possibly the only really new field of development along these lines is a combination sink, suitable for laundering clothes and for kitchen purposes. A small sink with a capacity of 3 to 4 gallons of water, equipped with a drain and a stopper, with a drainboard at each side, and mounted at a good height, would suffice for both purposes. If such a sink were made of good grade porcelain, which is easily kept spotless, the housewife would overcome her scruples against washing clothing and dishes in the same place.

## THE LAUNDRY ROOM AND ITS EQUIPMENT

Although there exists a definite trend toward the elimination of laundry equipment from the home, laundry rooms are being placed

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<sup>11</sup> Roberts, *op. cit.*



in most homes. The majority of homes according to most statistics still carry on weekly washing and ironing.

The location of the laundry room or the space where laundering is carried on varies widely. In the farm home, the kitchen, the porch, or a small room near the kitchen is used, for there is often no basement or any special place to do laundering. In many farm homes water must still be carried from the well or pump into the house for all purposes, and all waste water must be carried out. Hence, for a task requiring a large amount of water, it is natural that the farm woman should wash on the porch or in some out-building near the water supply. In the farm with running water, the kitchen or a nearby room is utilized.

The town housewife ordinarily has a basement in her home, a portion of which she utilizes for laundry work, providing running water is available. Occasionally she uses the kitchen or porch for washing or ironing, even though it involves many more steps. In homes of the lower cost level, there is rarely any built-in equipment. The larger town and city home is practically always supplied with running water and with a special room for the laundry work. Single and two-family dwellings are generally equipped with laundry trays and a floor drain. In the multiple dwellings, particularly in the eastern states, one finds a covered laundry tray and kitchen sink side by side in the kitchenette. This is open to objection as it may be unsanitary. In the western states, one generally finds a fairly well-equipped laundry, containing trays, a mechanical washer and drying space, either with or without a "quarter in the slot meter" to be used in rotation by the occupants of the building. Each apartment contains a built-in ironing board.

With the idea in mind of eliminating the old laundry room, but still maintaining laundering in the home, it has been suggested that a new utility room be added to the farm home. This room should be located on the first floor near the back door.<sup>12</sup> It could contain several laundry trays or a deep sink, a shower bath, and storage space for clothing. The men coming in from work could wash and bathe there. The housewife could use the room once a week or oftener, during the morning hours for laundering. She could also use the deep sink or one of the laundry trays for washing dirty vegetables and for other similar tasks—using a rack fitted to rest in the tray.

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<sup>12</sup> See Workroom design, p. 183.

Another idea in eliminating the laundry room is to combine the bathroom and laundry, which would simplify plumbing installations. Laundry trays could be built in, or a bench with two galvanized iron tubs could be used. The trays or tubs could be covered with a hinged shelf, which could be used as a table for dressing the baby. A cupboard could hold all other laundry equipment, as the wringer, boiler, soap supplies, etc. This laundry-bathroom should be located on the first floor of the house, near some entrance, to save steps in hanging up wet clothing. The room should contain a small coal, oil, electric, or gas heater for warmth in the winter time, which could also be used for heating water for washing.

Any laundry room should have several windows for ventilation and lighting. There should be some overhead lighting for dark days. It is advisable to have the walls painted a light color or, at least, to have the open rafters and walls whitewashed. The influence of a cheery laundry room may make one of the hard tasks of the week a very pleasant one.

In addition to the laundry room, it is well to consider space for drying clothes. The single or two-family dwelling on the farm, in town or city, usually has a yard. The multiple dwelling generally affords roof space or some type of indoor drying room. Sunshine is very effective as a bleaching and disinfecting agent. But indoor drying under sanitary conditions is satisfactory and must be used in many homes. Hanging the clothes in a basement room crossed by hot-water or steam pipes is good. Such a room should be thoroughly cleaned and whitewashed to establish as sanitary a condition as possible. Equipment for drying in the yard consists of either convenient hooks for the rope or wire line, or a revolving umbrella drier. The latter method saves steps in hanging up the clothing.

### Built-in Equipment

The laundry trays or tubs are possibly the first consideration under built-in equipment. They may be had in a variety of materials, all of which have advantages, some being more attractive and more easily cleaned than others. Prices quoted in the following paragraph are for the various types but do not include installation costs. The latter would amount to \$10 or \$15 or more if much additional plumbing is required. These prices were quoted in a mid-western state during July, 1931.

For an expenditure of about \$20, one could install a single sink and floor drain. This same amount will purchase a pair of composition trays. If more can be spent for tubs, a set of soapstone trays for \$40 or a pair of alberene stone tubs can be bought for \$50. All of these trays are colored from a light to a dark gray, or may be tinged with blue. Other trays are white or a light color. The cheapest of these is an enameled iron tub, the outside of which is covered with paint. A pair costs about \$50. Better grades of the same type of tray may range up to \$100. Good porcelain trays are very durable but cost over \$110.

Desirable features for the laundry tray are durability, well-plated hardware, easily cleaned surfaces, tray drain and correct height for the worker. Data on durability are very scarce. Slate, stone or cement is fairly smooth and inexpensive, but it does not look sanitary. Soapstone, also smooth and inexpensive, absorbs grease and stains. Galvanized iron, much used formerly, is neither attractive nor does it look clean. The white enamel finishes, more expensive and attractive, are easily cleaned, although the surface may be ruined by acids, or scratchy cleaning powders, or cracked by hard blows.

Modern plumbing hardware such as faucets may be obtained in several grades. Some are nickel plated while the more expensive types are of chromium plate. The movable single spout fed by both hot and cold water is desirable. A good gooseneck drain of suitable diameter in the floor of the tray and a drain set in the floor of the room are needed.

Heights of working surfaces may not seem to be important, but because of the modern tendency to consider the operator or housewife first, various tables of heights have been worked out. For instance, according to tables given in a Kansas State bulletin, a woman 5 feet tall should have the upper edge of her trays 33 inches above the floor and a woman 5 feet 8 inches tall should have her trays 3 inches higher, or 36 inches above the floor.<sup>13</sup>

All recommended washing methods involve the use of hot water, so some provision must be made for water heating. A small coal or wood stove can be secured for less than \$10, and a wash boiler for from \$3 to \$6. Some homes are designed for furnace heating of water, which would involve no extra cost toward laundry equip-

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<sup>13</sup> Heywood, S. M. *Planning and equipping home economics rooms in Kansas high schools.* Kan. City Agri. Col. Bul. 14 (10), Oct., 1930.



ment. However, in the refurnishing of an old house, a gas or electric water heater might be installed. The former costs between \$20 and \$75, depending upon the type of gas heater and its automatic features. The electric heater requires a 220-volt line and costs about \$150 for a 30-gallon tank and its accessories.

A chute for soiled clothing might be installed when a home is built, costing only a small sum. It should have door openings on each floor. This saves many steps, but can be omitted to save expense. Other minor built-in equipment, such as a set of shelves or cupboard for storage of supplies, soap, bluing, and stain-removal liquids, could be home-made.

Drying equipment in the laundry room may be simple or elaborate. The former might be only a series of hooks on the wall and a permanently installed wash line, or a wall arm or ceiling dryer. The basement laundry in a heated home is warmed by heating pipes leading to the upper floors, so in these homes no special drying chamber need be installed. The drying chamber may be either built-in or a separately purchased unit heated by gas or electricity. Either needs to be connected to some chimney flue so that there is normal circulation of air. Some types also add a small fan and motor to set up rapid circulation of air. These gas-fired dryers range in price from \$80 to \$125. Such dryers are advantageous in seacoast towns where the humidity is high. In cities where there is considerable coal soot and dirt in the air, housewives prefer to dry clothes indoors to obtain real cleanliness. A recent article indicated that in some cities the acid gases in the atmosphere are in high enough concentration to cause damage to clothing hanging out of doors.<sup>14</sup> Hence indoor drying is necessary in many cases.

A built-in ironing board in the laundry, kitchen, or bathroom is quite a desirable piece of equipment. It should be located in a well-lighted place. The simplest type is a board hinged to a wall, with some device to hold it in place for ironing, and a hook to hold it against the wall. It should be so placed that it may be used from either side. Inexpensive cabinet types can be secured for about \$5; others are as high as \$15.

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<sup>14</sup> Phair, R. A., and Lukash, J. G. "Smoke, a destroyer of the family wash." *Starchroom Laundry Jour.*, 34:37, 1927.

### Movable Equipment

Under the heading of movable equipment, one should first list a substitute for the laundry trays discussed elsewhere. A pair of galvanized iron tubs, costing about \$2.50, or wooden tubs placed on a wooden bench or boxes near the water supply, are very suitable. By attaching a 5 to 8-foot length of garden hose to the water faucet, considerable lifting of water is avoided. Dirty water can be emptied into the floor drain. Water can be heated in a boiler on the kitchen stove or on a small heater. A good copper boiler costing \$5 or \$6 will last a long time. A washer provided with its own gas burner makes the boiler unnecessary.

The washer is the most expensive item of movable equipment. Its cost ranges from \$15 for a hand-power washer to \$175 for certain electric machines. Washers vary from one to nine-sheet capacity or from one to ten pounds of dry clothing. The types are: Dolly, gyrator, cylinder, oscillator, vacuum cup, and disc. Comparative tests reported in a recent Nebraska bulletin indicate that of the electric and gasoline washers:

1. The gyrator type is the fastest in cleaning action.
2. Each machine seems to have its own optimum washing period and optimum load (in general slightly less than the load recommended by the manufacturer).
3. The dolly type is harder on the clothing.
4. That no one type of wall construction consistently shows better heat retention than any other.<sup>15</sup>

From a study of Electrical Merchandising Index for the last four years, it is evident that the trend of the manufacturers is toward the gyrator type. The 1930 listings indicate that 76 per cent are of this type. Other types, the dolly and oscillator, have practically disappeared from market listings of motor-driven machines. This popularity of the gyrator or agitator type is partially due to other factors than performance. But it is recognized that the actual construction of these machines provides for greater rigidity and hence fewer mechanical troubles.

Selection factors for the washing machine are:

1. Costs.
2. Available power.
3. Servicing.

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<sup>15</sup> Snyder, E. B., and Brunig, M. P. *A study of washing machines.* Neb. Agri. Expt. Sta. Research Bul. 56, 1931.

4. Size of family.
5. Convenient features.

As to the first, the best machine the family can afford should be purchased. Size of family should determine whether a one, five or nine-sheet size need be purchased.

Since there are four distinct types of power available, the second point needs some comment. In a hand-power machine, the lever or wheel should be of convenient height and arranged to carry the load with the least strain possible on the arm. If one is purchasing a water-power machine, he should be aware that 15 to 20 pounds pressure at the faucet is necessary to operate the machine. Gasoline-power motors are very good, but where electricity is available, the electric-motor machine is by far the best. Although it is expensive to purchase, the operating costs are low (about one cent an hour at a 3-cent per k. w. h. rate). Depreciation costs (the original cost distributed over a period of ten to twenty years) are greater than operating costs.

No matter what machine is selected, it will eventually need some servicing or mechanical attention. It, therefore, is advisable to purchase from a local dealer who will be able to repair the machine within a reasonable time. Mail-order houses supply washers of various prices and some claim long guarantee, but unless the man of the house is a good mechanic, it is better to buy from a well-established local dealer who can service the machine.

Special features of washers may have a great deal to do with their convenience. One should select a machine which is not too bulky or clumsy in construction, with easy-moving castors and adjustable legs, which permit the raising and lowering to the desired height. Ease and frequency of lubrication should be considered. Metal tub machines are superior to wooden ones, as the latter warp and crack. Of the metals, cast aluminum and galvanized iron are good. Neither is recommended for a very hard-water region. Nickered-copper and chromium-iron tubs are satisfactory anywhere. Porcelain enameled tubs are attractive and easy to clean, but must be handled with care to avoid chipping of the enamel.

Since various new devices for extracting water from wet clothing have appeared on the market, it is of interest to compare these with the roller wringer. Pfautz concluded that of the various types of roller wringers using hard and soft rubber rollers, no one



had a decided advantage over any other. Comparing the roller wringer with the centrifugal drier, she notes practically no saving in time but a noticeable difference in fatigue of the operator, the drier requiring less energy expenditure. Water extraction is practically the same as with the roller wringer, except in the case of bulky articles, as blankets, pillows, etc., when a longer spinning time removes a higher percentage of water.<sup>16</sup> The Washington bulletin states that a single pass through a pair of roller wringers removes as much water as "a thirty second spinning" in the basket drier.<sup>17</sup>

A new pressure type of water extractor has recently been placed on the market. Air pressure, increasing from zero to 50 pounds, back of a heavy rubber diaphragm, forces the water out of clothing placed in a bowl-shaped device. No tests have been reported on this type of extractor, but it is evident, first, that it will require servicing, and second, that there is a slight hazard to the operator.

Passing from the washer and the wringer to other movable pieces of washing equipment, one might list a wicker basket or clothes hamper, wire or hemp rope for a line, clothes pins and a utility wagon or inexpensive tea cart. The last item can be used for a service table as well as in hanging the clothing, being easily moved about the yard or drying area.

Under ironing equipment, one might list one or several ironing boards of different dimensions, a bottle sprinkler, and a drying rack. The sad, gas, gasoline, and electric irons of various weights are well known and need not be commented on, except that, in selecting an iron, it should be heavy enough to produce good ironing but not to cause undue fatigue.

The various gas and electric ironers are designed to lessen fatigue and save time, but they are quite expensive and can only be afforded in homes of the upper income levels. Operating costs are not excessive, being only twice as much as the similar costs for the electric hand iron (3 to 4 cents per hour at a 3-cent rate) and less than this for the gas-heated type. Since the original cost (\$60 to \$150) is high, some writers on home economy say that the purchase of an ironer is not justified unless the family consists of four or more members. Its main advantage is its capacity to handle

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<sup>16</sup> Pfautz, L. W. *Some factors involved in water extraction in the home laundry process*. Thesis. Ames, Iowa State College, 1930.

<sup>17</sup> Roberts, *op. cit.*

larger surfaces at one time than is possible with the hand iron. Disregarding expense, it is recognized that ironers do save fatigue and time. The roller type of ironer with either aluminum or iron shoe (the heated area) is generally equipped with several controls (finger, knee, foot), a safety lever, and pressing device. Some ironers may be attached to the wringer shaft of the washing machine, but this necessitates changing wringer and ironer for each washing, involving lifting 20 to 40 pounds. Portable table ironers are also quite heavy. The cabinet type covered with enameled table top is perhaps the most useful, because it can be used as an accessory table in kitchen or laundry room.

Experiments with a portable metabolism outfit are in progress at the State College of Washington to measure the actual energy expended while ironing under different conditions—sitting, standing, etc. The use of the ironer while sitting involves the least expenditure of energy, or 77 calories per hour. The experimenter, while standing and using a 6-pound electric iron, required 90 calories of energy per hour. This subject has a basal metabolism rate of 52 calories per hour. In conclusion, it may be said that, although the ironer costs twice as much to operate as the iron, it saves 15 to 20 per cent in time and is less fatiguing to operate.<sup>18</sup> Whether these two advantages balance the high initial cost can not be determined empirically, but it depends upon the family budget and the importance of time and energy saving to the individual housewife.

Due to fire hazards, dry-cleaning with inflammable liquids has practically disappeared from the home and has been taken over by the power laundry. However, with the new nonexplosive liquids and a 2-to-4 gallon capacity washer, dry-cleaning is still carried on in the home. This small washer consists of a metal cylinder or rectangular tank, which is rotated by hand. Its cost is not great. Out-of-door cleaning in a grounded metal pan is practiced, but on the whole the process is hazardous.

## RECOMMENDATIONS FOR THE VARIOUS INCOME LEVELS

In furnishing a small laundry room for a \$3,000 home, with an income of \$1,800 to \$2,000, there should be a low-priced pair of laundry trays, a small stove for heating water, boiler, wringer,

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<sup>18</sup> Roberts, *op. cit.*, p. 28.

washboard, wicker basket, rope and pins, iron, and ironing board. As the family income grows or savings accumulate, an inexpensive washer may be added. The use of laundry trays with a water supply is far more desirable than a bench and tubs, as the former eliminates all lifting and handling of water. If possible, provide the laundry area near the kitchen and on the same floor.

For the home without running water, a floored and lighted shed or outbuilding fairly near the pump or well is most desirable. There would need to be a small stove, boiler, tubs and bench, and other small items.

A more expensive home costing between \$5,000 and \$6,000 could contain a better grade of laundry tray, a built-in cupboard for supplies, and possibly a built-in ironing board. A washer could be purchased later when \$75 or \$100 was available.

The \$10,000 home could afford porcelain trays, a water heater, good electric washer, drying chamber, iron, and ironer, and the housewife would most likely hire outside help for the process. On the other hand, a family of this income level (\$4,000 to \$6,000) might own only a small apartment washer, drying rack and iron, and send the major portion of the laundry bundle to the commercial laundry.

Families of higher income need not be considered, as their funds are adequate for all purchases. In fact, it is known that only 5 per cent of the families in America have incomes sufficient to allow unlimited choice in purchase. And for the 95 per cent the cost of equipment is really too great to allow experimental buying.<sup>19</sup>

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<sup>19</sup> Davison, E. "Standards for the selection of household equipment." *Jour. Home Econ.*, 20:879, 1928.



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